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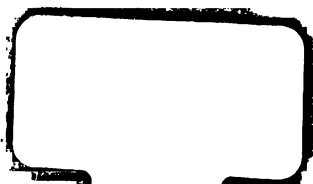
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Times

1844





Times

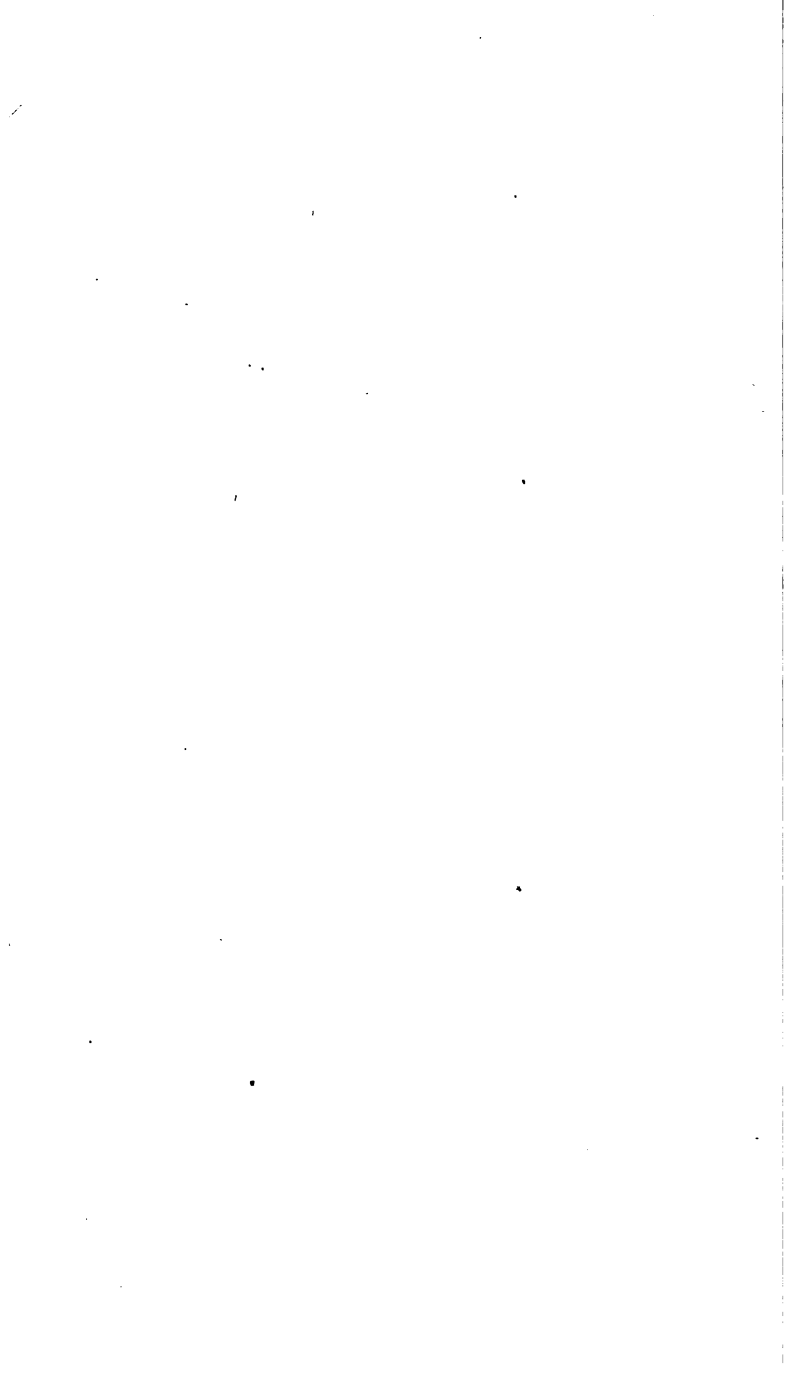
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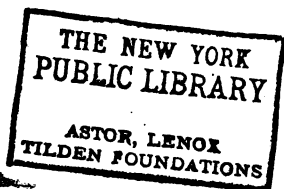






B.V.A  
~~1199 P~~









Engraved by Hapwood from a Painting by L. Carroll.

*Time assisted by Science discovering to Herschel the Georgium Sidus.*

London, Pub<sup>d</sup> by Sherwood, Noddy & Jones, Nov<sup>r</sup> 18, 1817.

# **Time's Telescope**

FOR

## **1818;**

OR,

### ***A Complete Guide to the Almanack:***

CONTAINING AN EXPLANATION

OF

### **SAINTS' DAYS AND HOLIDAYS;**

WITH ILLUSTRATIONS OF BRITISH HISTORY AND ANTIQUITIES,

NOTICES OF OBSOLETE RITES AND CUSTOMS,

AND SKETCHES OF

### **COMPARATIVE CHRONOLOGY.**

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### **Astronomical Occurrences**

IN EVERY MONTH;

COMPRISING REMARKS ON THE PHENOMENA OF THE CELESTIAL BODIES:

AND

### **THE NATURALIST'S DIARY;**

EXPLAINING THE VARIOUS

APPEARANCES IN THE ANIMAL AND VEGETABLE KINGDOMS.

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TO WHICH IS PREFIXED

### **An Introduction,**

CONTAINING THE

### ***Outlines of Geology and Mineralogy.***

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PUBLISHED ANNUALLY.

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**London:**

**PRINTED FOR SHERWOOD, NEELY, AND JONES,**  
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## Advertisement.

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**THE** annual volumes of *Time's Telescope* have experienced so large a share of public favour, and its plan and object are now so well known, that we shall merely point out the prominent features of our researches for the year 1818.

In the **ASTRONOMICAL OCCURRENCES**, besides the usual explanation of the various phenomena of the heavens, will be found, *Observations on the Transits of Venus; the Distances, Magnitudes, Motions, &c. of the Heavenly Bodies; the Rotation of the Sun, Moon, &c.; the Elements of the Planetary Orbits; the Satellites of the Planets; the Motion and Aberration of Light; and Particulars of the Comets which appeared in 1807 and 1811.*

The **REMARKABLE DAYS** afford some additional *Notices of Antiquities, Manners, and Customs; the COMPARATIVE CHRONOLOGY includes the Biography of many eminent Men recently deceased; and great part of the Remarks and Poetical Illustrations in the NATURALIST'S DIARY are entirely new.*

The **OUTLINES of GEOLOGY and MINERALOGY** are connected with the *Elements of Botany and Zoology in Time's Telescope for 1816 and 1817, and serve to complete our view of the three great Kingdoms of Nature.*

To several valuable Correspondents the Author has to return his best thanks for their useful hints and communications.

LONDON,  
November 15, 1817.

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### Notices of *Time's Telescope* for 1814.

'We cheerfully give to "*Time's Telescope*" our warmest recommendation as a pleasing and safe book for the rising generation.'—*Eclectic Review* for February 1814.

'This Work contains a great variety of very useful information, conveyed in a most pleasing manner. We cannot hesitate to pronounce that it will be popular: it deserves to be so; and it has too many attractions, for every kind of taste, to be overlooked. It will form a delightful as well as instructive present for young persons at Christmas.'—*British Critic* for December 1813.

'This is a valuable compilation.'—*Supplement to Gentleman's Magazine* for December 1813.

'"*Time's Telescope*" bids fair to acquire considerable popularity. In truth, it deserves to be popular, for the author has shown an equal degree of acquaintance with the general principles of the subject he has undertaken to elucidate, and of taste and judgment in his illustrative and decorative extracts from various descriptive poets and other writers.'—*New Annual Register* for 1813.

'This Work conveys a very considerable portion of intelligence, that may be new to many and useful to all; and it is recommended no less by the neatness of its typographical execution, than the accuracy of its literary and scientific details.'—*Universal Magazine* for January 1814.

'On a general survey of this book, we do not hesitate to pronounce it as one of the most proper to be placed in the hands of young people. It is a little mine of information; and the mind that can rise from its perusal without having gained some important and useful knowledge, must be strongly encased in the leaden armour of stupidity.'—*Commercial Magazine* for February 1814.

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### Notices of *Time's Telescope* for 1815.

'We never met with a compilation better calculated for the use of families, and to serve as a portable companion for young persons, than this elegant little volume, which abounds with valuable information on subjects of general interest, and with a pleasing variety of rational entertainment. The book is written in a popular style, the articles are selected with great judgment from the best authorities; and while the scientific illustrations tend to quicken curiosity, the reflections interspersed with the extracts, occasionally given from the most charming of our poets, will increase the delight afforded by contemplating the works of nature, and raise the mind to a devout admiration of the Divine Author.'—*New Monthly Magazine*, Jan. 1815.

'The Work before us supplies accurate, though popular, instruction on a variety of topics. It is written in a correct and tasteful style, enlivened by many exquisite quotations from the poets of the day; and is interspersed with such reflections as flow naturally from the conviction that knowledge, to be extensively beneficial, either to its possessor or to others, must be purified by religion, manifested in benevolence, and consecrated to God.'—*Eclectic Review* for February 1815.

'The History of Astronomy, and the first principles of the art, are well displayed in this entertaining volume. It will be the source of much amusement and information upon the mysteries of the Almanack, and the appearances of the heavenly bodies. Much curious matter respecting the several Saints' Days has been collected together; which, with an accurate account of the flowers which blossom and the buds which appear in the course of every month, cannot fail to interest and instruct the reader.'—*British Critic* for December 1814.

'We have no hesitation in giving "*Time's Telescope*" our unqualified commendation.'—*Gentleman's Magazine* for February 1815.

'This is the second annual appearance of "*Time's Telescope*," and we willingly confess that it is much improved. The quantity of useful and interesting matter which is here amassed together, distributed with judicious appropriation under each month, is highly creditable to the industry and taste of the compiler.'—*New Universal Magazine* for December 1814.

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### Notice of *Time's Telescope* for 1816.

'*Time's Telescope* is compiled with skill and judgment, and contains much desirable miscellaneous information, and many interesting and instructive sketches, particularly on some parts of Natural History. We recommend this Work to the attention of our juvenile readers, who will find it an agreeable and instructive companion.'—*Monthly Review* for November 1816.

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### Notices of *Time's Telescope* for 1817.

'We have already noticed the preceding volume of this amusing and instructive performance; and we have now little to add to or deduct from the encomiums which we deemed it our duty to pass on the contents of that part; the plan being still the same, and the execution and arrangement as nearly as possible on the same model. We shall not consider it as requisite for us to continue our report of this annual publication.'—*Monthly Review* for August 1817.

'The Almanack, in order to be reduced to a cheap and convenient form, has become so enigmatical, that a more enlarged explanation of its contents and references is very desirable; and such is the purpose of the "*Time's Telescope*," which appears to us to be executed in a very amusing way, and the Astronomical portion of it is prepared evidently by a person of science.'—*Critical Review* for December 1816.

'A very entertaining and useful compendium of multifarious lore.'—*Eclectic Review* for January 1817.

'The industry of the compiler has been successfully exerted in the collection of an entertaining, and, in many respects, useful mass of materials.'—*Antijacobin Review* for December 1816.

'There is in this volume an excellent Introduction to the "*Principles of Zoology*," quite studded with poetical citations; and a copious index is added to the whole series. In point of quantity and quality, indeed, the present is fully equal, if not superior, to any of the preceding volumes; and our readers will not readily find a more attractive "*New Year's Present*" for their juvenile friends, which, while it acquaints them with the pleasing wonders of Nature, teaches them, at the same time, that all these "are but the varied God."—*Gentleman's Magazine* for December 1816.

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# Introduction.

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## OUTLINES OF GEOLOGY.

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The earth, like a kind mother, receives us at our birth, and sustains us when born: it is this alone, of all the elements around us, that is never found an enemy to man. The body of waters may deluge him with rain, oppress him with hail, and drown him with inundations. The air rushes in storms, prepares the tempest, or lights up the volcano; but the earth, gentle and indulgent, ever subservient to the wants of man, spreads his walks with flowers, and his table with plenty; returns with interest every good committed to her care; and if she produce the poison, she supplies also the antidote. Though constantly teased, more to supply the wants of man than his necessities, yet, even to the last, she continues her kind indulgence, and, when life is over, piously covers his remains in her bosom.—PLINY.

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**GEOLOGY** has for its object the study of the earth in general, of its plains, hills, and mountains; and embraces the consideration of the materials of which it is composed, and the circumstances peculiar to its original formation, as well as the different states under which it has existed, and the various changes which it has undergone.

Until towards the end of the last century, geology was little understood; perhaps, because those sciences on which it chiefly depends, chemistry and mineralogy, had not made any great advances towards their present state. It is no wonder, therefore, that in default of a knowledge of these sciences, and of that research by which alone we can become acquainted with the constituent masses of the globe, the activity



of the human mind should attempt to account for the creation and present state of the earth by uninstructed efforts of the imagination. It may be amusing to give a short account of a few of these fanciful theories.

In these hypotheses, two events only, the creation and the deluge, seem to have entered into the calculations of the inventors, as comprehending all the changes to which the globe has been subjected: that is to say, each arbitrarily ascribed to it a certain primitive state, which each supposed to be altered and modified by the effects of the deluge.

The first writer, whose name merits notice, is BURNETT, who may be justly said to have adorned the latter half of the seventeenth century. And though it be true that his pen has rather recorded the sallies of a vivid imagination, than the inferences of sober argument, he will still be read with some profit, though certainly with more pleasure, even in these times. The objection to Burnet and his contemporaries, and immediate successors, is, that they fancifully go back to the chaotic state of the earth, and after enlarging, embellishing, and obscuring the Mosaic history, they pretend to have illustrated and proved it. Accordingly, Burnet, in his *Sacred Theory of the Earth*, begins with the separation of elements from a fluid mass. The heaviest particles sank, and formed a nucleus, and water and air took their respective stations: upon the water, however, the air afterwards deposited a rich unctuous crust, which begat vegetation, and a beautiful verdure clothed the whole. There were no mountains, no seas, no protuberances

or inequalities; and the equator being coincident with the plane of the ecliptic, all the charms of spring were perpetual. This state of things, however, did not thus continue for many centuries; for the Sun caused large cracks and fissures in the exterior, which by gradual increase extended to the great aqueous abyss; the waters rose higher and higher, the surface was utterly broken up and destroyed, and an universal deluge took place: at length dry land began again to appear, owing to a gradual subsidence of the waters, which retired into caverns and crevices originally existing in the nucleus, or formed by the disruption of the crust. Upon the increasing dry land, vegetation began again to exist, and our present islands and continents were formed, while the sea still occupies, in parts, its original bed.

We shall not attempt to recite the minutiae of Burnet's fanciful theory; but we cannot dismiss his work without quoting the following eloquent passage. It is a funeral oration over the globe: 'Let us now,' says he, 'reflect on the transient glory of the earth; how, by the force of one element breaking loose on the rest, all the beauties of nature, each work of art, and every labour of man, are reduced to nothing; all that once seemed admirable, is now obliterated; all that was great and magnificent, has vanished; and another form and face of things, plain, simple, and uniform, overspreads the earth. Where are now the empires of the world? where the imperial cities, the pillars, trophies, and monuments of glory? what remains, what impressions or distinctions do you now behold? what is become of Rome, the great city; of eternal

Rome, the empress of the world, whose foundations were so deep, whose palaces were so sumptuous?—her hour is come, she is wiped from the face of the earth, and buried in everlasting oblivion. . But not the cities only, and the works of men's hands, but the hills and mountains, and rocks of the earth, are melted as wax before the Sun, and their place is no where found; all have vanished and dropped away, like the snow that once rested upon their summits<sup>1</sup>.

According to *Woodward*, the deluge was occasioned by a momentary suspension of cohesion among the particles of mineral bodies; the whole mass of the globe was dissolved, and the soft paste became penetrated by shells.

*Whiston* supposed the earth, at the beginning, to be an uninhabitable comet, subject to such alternate extremes of heat and cold, that its matter, being sometimes liquefied, and sometimes frozen, was in the form of a *chaos*, or an abyss surrounded with utter darkness. This chaos was the atmosphere of the comet, composed of heterogeneous materials, having its centre occupied with a globular, hot, solid nucleus, of about two thousand leagues diameter. Such was the condition of the earth before the period described by Moses as the time of *creation*. The first day of the creation every material in this rude mass began to be arranged according to its specific gravity. The heavy fluids sank down, and left to the earthy, watery, and aërial substances, the superior regions.

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<sup>1</sup> Brande's Outlines of Geology, p. 4, 9.

Round the solid nucleus is placed the heavy fluid, which descended first, and formed the great abyss upon which the earth floats, as a cork upon quick-silver. The great abyss is formed of two concentric circles; the interior being the heavy fluid; and the superior, water; upon which last, the earth, or the crust we inhabit, is immediately formed. So that, according to this theorist, the globe is composed of a number of coats or shells, one within the other, of different materials, and of different densities. The air, the lightest substance of all, surrounds the outer coat; and the rays of the sun, making their way through the atmosphere, produced the light which *Moses* tells us first obeyed the divine command. The hills and valleys are formed by the mass of which they consist, pressing with greater or less weight upon the inner coat of the earth; those parts which are heaviest sinking lowest into the subjacent fluid, and making *valleys*, and those which are lightest rising higher and forming *mountains*.

Such Mr. Whiston supposed to be the state of the globe we inhabit before the *Deluge*. Owing to the superior heat, at that time, of the central parts, which have been ever since cooling, the earth was more fruitful and populous anterior to that event than since. The greater vigour of the genial principle was more friendly to animal and vegetable life. But as all the advantages of plenty and longevity which this circumstance produced, were productive only of moral evil, it pleased God to testify his displeasure against sin, by bringing a flood upon a guilty world. The flood was produced, as this theorist supposed, in the fol-

lowing manner :—A comet, descending in the plane of the ecliptic of its perihelion, made a near approach to the earth. The approximation of so large a body raised such a strong tide, and produced such powerful commotion in the abyss concealed under the external crust, that the latter was broken, and the waters which had been before pent up, burst forth with great violence, and were the principal means of producing the deluge. In aid of this, he had recourse to another supposition, which was, that the comet, while it passed so near the earth as to produce these effects by the force of attraction, also involved our globe in its atmosphere and tail for a considerable time, and deposited vast quantities of vapours on its surface, which produced violent and long-continued rains ; and, finally, that this vast body of waters was removed by a mighty wind, which dried up a large portion, and forced the rest into the abyss from which it had been drawn, leaving only enough to form the ocean and rivers which we now behold.

The great *Leibnitz* amused himself, as did also *Descartes*, by conceiving the world to be an extinguished sun or vitrified globe ; upon which the vapours, condensing in proportion as it cooled, formed seas, which afterwards deposited calcareous strata.

*Demaillet* taught, that the earth was once wholly covered with water, which, by means of strong currents, raised in its bosom all those mountains which different countries bear on their surface ; that this water has been ever since gradually diminishing, and will continue to diminish until it shall be quite absorbed ; that our globe, being then set on fire, will

become a sun, and have various planets revolving in its vortex, till its igneous particles being consumed, it will be extinguished; that then it will roll through the immensity of space, without any regular motion, till it is again covered with watery particles, collected from other planets, when it will fix in the vortex of a new sun, and again go through the same course of motions and changes, being supplied with fresh inhabitants, resembling those by which it is tenanted at present; that the earth has probably been undergoing revolutions of this kind from all eternity, and will continue to go through a succession of them without end.—This atheistical and absurd theory, if it deserve the name, not more hostile to revelation than to all sound philosophy, seems to have gained but few adherents, and but little celebrity.

After M. Maillet, his countryman, the *Count de Buffon*, formed a new theory of the earth, which has been much celebrated, and, notwithstanding its inconsistency with revelation, and the visionary absurdities which it involves, has gained many advocates and admirers.

According to the theory of *Buffon*, a comet falling into the body of the sun with great force, struck from its surface a large mass of liquid fire. The comet communicated to this fragment, thus driven off from the sun, a violent impulsive force, which it still retains. This fragment forms the globe we inhabit. It assumed its present figure when in a fluid state. As the heated mass gradually cooled, the vapours which surrounded it condensed, fell down in the form of water upon the surface, depositing at the same time

a slimy substance, mixed with sulphur and salts, part of which was carried by the waters into the perpendicular fissures of the strata, and produced metals ; the rest remaining on the surface, and giving rise to vegetable mould, with more or less of animal and vegetable particles. Thus the interior parts of the globe were originally composed of vitrified matter, and they continue so at present. Above these were placed those bodies which the fire had reduced to the smallest particles, as sands, which are only portions of glass, and above these pumice stones, and the dross of melted matter, which gave rise to different clays. The whole was covered with water to the depth of five or six hundred feet. This water deposited a stratum of mud, mixed with all those materials which are capable of being sublimed or exhaled by fire, and the air was formed of the most subtile vapours, which, from their levity, rose above the waters.

Such was the condition of the earth, as Buffon supposes, when the tides, the winds, and the heat of the sun, began to introduce changes on its surface. The diurnal motion of the earth, and that of the tides, elevated the waters in the equatorial regions, and necessarily transported thither great quantities of slime, clay, and sand ; and by thus elevating these parts of the earth, sunk those under the poles about two leagues. The great inequalities of the globe took place when it assumed its form and consistence ; swellings and blisters arising, as in the case of a block of glass or melted matter. In the act of cooling, it became furrowed, and variously irregular. The vitrescent matter of which the rock of the globe

is composed, and all the nuclei of mountains, were produced by the primitive fire. The waters have only formed the accessory strata, which surround the nuclei horizontally, and in which are the relics of shells, and other productions of the ocean. The whole surface of the earth, therefore, as we now behold it, was, at a period long subsequent to its separation from the sun, covered by an ocean; and the waters forming this ocean probably remained for a succession of ages on what are now inhabited continents. Hence the remains of marine plants and animals to be found in almost every part of the globe, on or near its surface. M. Buffon supposes, further, that, since the period when the primitive waters encircled the earth, there have been repeated partial inundations, in different places; and, in others, instances of land formerly covered with the ocean being elevated above it, and becoming inhabitable; and similar events, he seems to suppose, may in future occur. According to him, also, the earth, for many ages, too intensely heated to admit the existence of animal life on its surface, first acquired at the poles a more genial temperature. There, consequently, must we look for the first abodes of man. To *Greenland* or *Iceland*, to *Spitzbergen* or *Nova-Zembla*, we must have recourse for the verdant bowers of Eden. And, finally, he contends that all the other planets belonging to our system were stricken off from the sun in the same manner with that which we inhabit, and have probably undergone similar changes, so far as their respective circumstances admitted.

Such are the outlines of a theory bold and plau-



sible, as might have been expected from the mind of its author, but unsubstantial and deceptive. Its manifest object is to exclude the agency of a Divine Architect, and to represent a world begun and perfected merely by the operation of natural undesigning causes. That it cannot be reconciled with the sacred history, will appear evident on the slightest inspection; and that it involves the grossest philosophical absurdities, has been clearly shown by succeeding geologists. It was embraced, however, by M. Bailly, of France, by the celebrated Hollmann, of Goettingen, and others; and continues to be respected and adopted by many to the present time.

Some modern philosophers have supposed every thing to have been originally fluid; that this universal fluid gave existence to animals of the simplest kind; that in process of time the races of these animals became complicated, and dying, supplied calcareous earth or lime; that aluminous earth or clay was supplied by the decay of vegetables. That these two earths were re-dissolved, and finally converted into silex; hence that the more antient mountains are siliceous. Thus the solid parts of our globe, according to these visionaries, owe their existence to animal or vegetable life, and without it would have continued entirely liquid.

*Kepler*, one of the greatest of astronomers, considered the globe to be possessed of living faculties and a circulating vital fluid; that all the particles of it are alive and possess instinct and volition, whence their attraction and repulsion: that the organs through which the huge animal breathes are the mountains;

that mineral veins are abscesses, and metals the products of rottenness and disease.

These systems, and many more than these, have had their admirers, and have successively sunk into disrepute and neglect in proportion to the advance of chemical and physical science. It will be sufficient for our purpose to notice two other systems,—those of Professor WERNER and Dr. HUTTON, which still continue to occupy the attention of geologists; the partisans of the former theory being denominated *Neptunists* or *Wernerians*, and of the latter, *Plutonists*, *Volcanists* or *Huttonians*, according as the particular agency of *water* or *fire* has been referred to.

The first principle of the *Wernerian* theory assumes that our globe was once covered with a sort of chaotic compost, holding either in solution or suspension the various rocks and strata which now present themselves as its exterior crust. From some unexplained cause, this fluid began first to deposit those bodies which it held in chemical solution, and thus a variety of crystallized rocks are formed. In these we find no vegetable or animal remains, nor even any rounded pebbles; but in the strata which lie upon the crystalline, or first deposits, shells and fragments occasionally occur: these, therefore, have been termed *transition strata*; and it is imagined that the peopling of the ocean commenced about this period. The waters upon the earth began now more rapidly to subside, and finely divided particles, chiefly resulting from disintegration of the first formations, were its chief contents; these were deposited upon the transition rocks

chiefly in horizontal layers. They abound in organic remains, and are termed by Werner, *Floetz*, or *Secondary rocks*.

It is now conceived that the exposure of the *primitive*, *transition*, and *secondary* rocks to the agencies of wind and weather, and to the turbulent state of the remaining ocean, produced inequalities of surface; and that the water retreated into lowlands and vallies, where a further deposition took place, constituting clay, gravel, and other *alluvial* formations.

There are also certain substances which, instead of being found in regularly alternating layers over the earth, are met with in very limited and occasional patches. Rock salt, coal, basalt, and some other bodies, are of this character, and Werner has called them *subordinate* formations. Lastly, subterraneous fires have sometimes given birth to peculiar and very limited products; and these are called *volcanic* rocks. Such is Werner's account of the production of rocks, which he arranges under the terms *primary*, *transition*, *secondary*, *alluvial*, *subordinate*, and *volcanic* formations.

Dr. HUTTON gives a very different account of the present order of things. Looking upon the face of nature, he observes every thing in a state of decay; and as she has obviously provided for the regeneration of animal and vegetable tribes, so the philosophic mind will descry, in this apparent destruction of the earth's surface, the real source of its renovation. The lofty mountains exposed to the action of the varying temperature of the atmosphere, and the waters.

of the clouds, are by slow degrees suffering constant diminution, their fragments are dislodged, masses are rolled into the valley, or carried by the rushing torrent into rivers, and thence transported to the sea. The lower and softer rocks are undergoing similar but more rapid destruction. The result of all this must be, the accumulation of much new matter in the ocean, which will be deposited in horizontal layers. Looking at the transition rocks of Werner, he perceives that, though not strictly crystalline, they appear made up of finely divided matter, more or less indurated, and sometimes very hard in texture, and of a vitreous fracture; and that this hardening is most perceptible when in contact with the primitive or inferior rock, which often pervades them in veins, or appears to have broken up or luxated the superincumbent masses. According then to Dr. Hutton, the transition or secondary rocks of Werner were deposited at the bottom of the ocean, in consequence of operations similar to those which are now active, and the primary rocks were formed beneath them by the operation of subterraneous fires: their crystalline texture, their hardness, their shape and fracture, and the alterations they have produced upon their neighbours, are the proofs of the correctness of these views. It is by the action of subterraneous fire, then, that rocks have been elevated, that strata have been hardened, and that those changes have resulted which an examination of the earth's surface unfolds. The production of soils and of alluvial land is considered as dependent upon causes the same as those referred to in the other theory.

It will be observed, that Hutton refers to fire as well as water for the production of our present rocks; the former consolidating, hardening, and elevating; the latter collecting and depositing the strata<sup>1</sup>.

Both these systems have had able defenders in the persons of Mr. PLAYFAIR and Mr. KIRWAN; the former in his 'Illustrations of the Huttonian Theory,' and the latter in his 'Geological Essays.' To these works, therefore, we refer the inquisitive reader, as well as to Mr. BRANDE's excellent 'Outlines of Geology,' in which will be found a fair and impartial examination of the two systems. The opinion of Mr. Brande inclines to *Plutonism*, though, as he properly observes, he would not be deemed assentient to every clause of the Huttonian doctrines. Several of these, indeed, are considered to militate against the Scriptures; and the theory of WERNER, as illustrated by Mr. KIRWAN, has been found most conformable to the Mosaic account of the creation.

It appears then (says Mr. Brande) that the terrestrial changes going on around us, both rapid and gradual, are subservient to the most beneficial effects, and that, by operations apparently destructive, nature renovates her powers: from the decay of animated beings we have elsewhere deduced similar conclusions, and in inanimate nature we now read the same great and exalted truths; we learn that the Author of Nature has not given laws to the universe, which, like the institutions of men, carry in themselves the ele-

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<sup>1</sup> Brande's Outlines of Geology, p. 20.

ments of their own destruction, but that His works are preserved in unchangeable perfection, and, as it were, in eternal youth.

Ere the rising Sun

Shone o'er the deep, or 'mid the vault of night  
The Moon her silver lamp suspended; ere  
The vales with springs were watered, or with groves  
Of oak or pine the antient hills were crowned;  
Then the Great Spirit, whom his works adore,  
Within his own deep essence viewed the forms,  
The forms eternal of created things:  
The radiant Sun; the Moon's nocturnal lamp;  
The mountains and the streams; the ample stores  
Of earth, of heaven, of Nature. From the first,  
On that full scene his love divine he fixed,  
His admiration. Till, in time complete,  
What he admired and loved his vital power  
Unfolded into being. Hence the breath  
Of life informing each organic frame;  
Hence the green earth, and wild resounding waves;  
Hence light and shade, alternate; warmth and cold;  
And bright autumnal skies, and vernal showers,  
And all the fair variety of things.

AKENSIDE:

If there be any part of natural knowledge calculated to awaken in us the most profound sense of the excellence and perfection of Nature's works, it is surely in the subjects that have now been before us. That person is little to be envied who, beholding the immensity of the universe, and marking the majestic simplicity by which its operations are conducted, does not feel awakened to a higher species of being, and admitted into nearer in-

tercourse with the Author of Nature. In short, it is impossible to pursue knowledge without mingling with it the best sentiments of devotion, or to perceive the laws of Nature without, at the same time, discerning the hand of the Lawgiver. Thus, in every age and country, ‘ the evidences of religion have advanced with the progress of true philosophy ; and science, while she raises a monument to herself, at the same time erects an altar to the DEITY.’

While difficulties which were supposed to render the Deluge *impossible* have been *removed* by the investigations of modern geologists, many facts have been at the same time brought to light, showing the *possibility*, and even *certainty*, of that mighty inundation. In every valley and mountain, support for revelation has been found. *Marine shells* have been discovered in situations so elevated, and under circumstances so remarkable, as to prove that they were left there by a flood extending over the whole globe ; and what confirms this conclusion is, that shells peculiar to different shores and climates very distant from each other have been found in promiscuous heaps ; plainly showing that they could have been brought together only by an extensive inundation. The bones of the *elephant*, and the *rhinoceros*, have been found, in a multitude of instances, far distant from the regions in which they were found to live, and where, from the nature of the climate, they could never exist in the living state : and between the climates which they might have inhabited, and the places in which they are now found, too many moun-

tains intervene, to suppose them carried thither by any other means than that of a *general deluge*.

Whether we excavate the plains, penetrate into the caverns of mountains, or scale their rugged sides, every where the spoils of organized bodies are buried in those beds which form the external coat of our earth. Banks of *slate* contain *fish*, and beds of *coal* display impressions of *vegetables*, at elevations or at depths equally astonishing. *Here* beds of *shells*, extending for many miles under ground, cover others which contain only *vegetables*:—*there* the bodies of *fish* are placed above *land animals*, and they, in their turn, are covered by strata or layers, containing the remains of *plants* and *shells*. Torrents of lava, and heaps of pumice-stone, the products of subterraneous fire, mingle, in other places, with the inhabitants of the ocean.

The *internal constitution* of the earth is but little known; our investigations are at the best but superficial. We know nothing but of what appears *on*, or *above*, or of what is brought to light by the descent of the miner *beneath*, the general level of its surface; but the miner rarely descends more than 1500 feet, which is little more than  $\frac{1}{30000}$ th part of the diameter of the earth. The globe has often been said to resemble in shape an orange; in allusion to that resemblance, we may therefore say, that we know nothing but of the outer rind. The upper crust or surface is found to be composed of different *strata*, or beds placed one above the other. These strata or layers are very much mixed, and their direction, matter, thickness,



and relative position, vary considerably in different places. These strata are divided into seven classes. (1.) *Black earth* is composed of putrified vegetable and animal substances. It contains many salts, and much inflammable matter. This is what is commonly called *mould*. (2.) *Clay* is more compact than black earth, and retains water longer on its surface. (3.) *Sandy earth* is hard, light, and dry; it neither retains water, nor is dissolved in it. It is the worst kind of earth, though some kinds of plants may grow in it. (4.) *Marle* is softer, more mealy, less hard, and attracts moisture better. (5.) *Bog*, or *moss earth*, contains a vitriolic salt, which is too acid for plants. (6.) *Chalk* is dry, hard, and brittle; notwithstanding, a few plants can thrive in it. (7.) *Scabrous* or *stony earth*. The smoothest stones, however bare of earth, are at least covered with moss, which is a mere vegetable production; and birch is known to grow between stones, and in the clefts of rocks, and grows also to a considerable height.

The surface of the globe, considered with relation to its inequalities, is divided into highland, lowland, and the bottom of the sea. I. *Highland*, comprises (1.) Alpine land, composed of mountain groups, or series of mountain chains; (2.) Mountain chains, formed by a series of those still more simple inequalities called, (3.) Mountains: in the *former* are considered their length, height, form, and connexion; the parts of the *latter* are the foot, the acclivity, and the summit. II. *Lowland*, comprises those exten-

sive flat tracts which are almost entirely destitute of small mountain groups. III. To the *bottom of the sea*, belong the flat, the rocky bottom, shoals, reefs, and islands. *Rocks* are those stony masses which form a portion of the substance of the globe, and are generally disposed in ranges, like mountains, but in some few instances are found to exist in large and separate masses.

Rocks rich in gems, and mountains big with mines,  
That on the high equator ridgy rise,  
Whence many a bursting stream auriferous plays.

THOMSON.

Rocks are divided into five classes, which are called *formations*; as, *primitive*, *transition*, *fletz*, *alluvial*, and *volcanic*. (1.) *Primitive*, are the class of rocks on which all others rest, whose texture is more or less crystalline, a quality denoting previous chemical solution. They comprehend granite, gneiss, mica-slate, talc-slate, hornblende slate, syenite, porphyry, serpentine, and lime-stone. (2.) *Transition* rocks are principally composed of chemical productions. Lime-stone occurs more frequently in this than in the preceding class. These rocks were formed during the transition of the earth into a habitable state; they differ from the primitive in the variety of their colour, and by containing the remains of marine animals. (3.) *Fletz* rocks disposed in flat or horizontal strata, after the creation of animals and vegetables, the remains of which are often found in the substance of these rocks. (4.) *Alluvial* rocks are formed by the component parts of previously existing rock, separated

by the influence of air, water, and change of temperature, and deposited in beds. Sand, gravel, loam, and petrifications of animals and vegetables, are often found in this class. (5.) *Volcanic* formations are pseudo-volcanic, or such minerals as are altered in consequence of the burning of beds of coal in the neighbourhood; and true-volcanic, or such as are actually thrown from the crater of the volcano. The volcanic productions are: (1.) *Pumice-stone*, a kind of glass, in the form of small greyish, white, and exceedingly brilliant filaments. It is often lighter than water. (2.) *Lava*, the burning matter which runs down, in such prodigious quantities, from volcanos, when in a state of eruption, and often extends to a great distance. This matter is a semi-vitrified substance, and appears of a blackish cast. (3.) *Basaltes* is blackish and opaque, and may, by the action of heat, be converted into glass, of a very beautiful black colour. Of some kinds, such as that known under the name of *touchstone*, the grain is exceedingly fine.

*Decomposition of Rocks.*—The expansion of water in the pores or fissures of rocks by heat, or congelation, is a physical cause of the separation of their parts. The solvent power of moisture exerted upon alkaline or calcareous matter, in rocks, is another cause of their decomposition. *Electricity*, which is shown, by experiments with the voltaic apparatus, to be a most powerful agent of decomposition, seems to assist in all these changes; electrical powers being almost constantly exhibited in the atmosphere. The production of a bed for *vegetation* is effected by

the decomposition of rocks. As soon as the rock begins to be softened, the seeds of *lichens*, which are constantly floating in the air, make it their resting place. Their generations occupy it, till a finely divided earth is formed, which becomes capable of supporting mosses and heath: acted upon by light and heat, these plants imbibe the dew, and convert constituent parts of the air into nourishment. Their death and decay afford food for a more perfect species of vegetable; and, at length, a mould is formed, in which even the *trees of the forest* can fix their roots, and which is capable of rewarding the labours of the cultivator.

The decomposition of rocks tends to the *renovation of soils*, as well as their cultivation. Finely divided matter is carried by rivers from the higher districts to the low countries, and alluvial lands are usually extremely fertile. The quantity of habitable surface is constantly increased by these operations; precipitous cliffs are gradually made gentle slopes, lakes are filled up, and islands are formed at the mouths of great rivers. In these series of changes, connected with the beauty and fertility of the surface of the globe, small quantities of solid matter are carried into the sea; but this seems fully compensated for by the effects of vegetation in absorbing matter from the atmosphere, by the production of coral rocks and islands in the ocean, and by the operation of volcanic fires.

What does not fade? the tower, that long had stood  
The crash of thunder and the warring winds,  
Shook by the slow but sure destroyer, time,  
Now hangs in doubtful ruins o'er its base;

And flinty pyramids and walls of brass  
Descend ; the Babylonian spires are sunk ;  
Achaia, Rome, and Egypt, moulder down.  
Time shakes the stable tyranny of thrones,  
And tottering empires rush by their own weight.  
This huge rotundity we tread grows old ;  
The sun himself shall die, and antient night  
Again involve the desolate abyss.

ARMSTRONG.

The science of *geology*, independently of the healthy employment it affords, is of great importance in a practical point of view. It very nearly concerns the miner, engineer, and drainer, and even the farmer and architect ; and discloses a variety of indications highly useful in their respective pursuits. To the *miner*, the rocks containing metallic veins and coals ; to the *engineer*, the association of hard rocks with soft ; to the *drainer*, the intersection of a country by hard dykes, or veins impermeable to water ; to the *farmer*, the best places for finding lime-stone, marle, and clay ; and to the *architect*, the most durable stones for buildings. The person who is attached to geological inquiries can scarcely ever want objects of employment and of interest. The ground on which he treads—the country which surrounds him—and even the rocks and stones removed from their natural position by *art*, are all capable of affording some degree of amusement. Every new mine or quarry that is opened, every new surface of the earth that is laid bare, and every new country that is discovered, offers to him novel sources of information. In *travelling*, he is interested in a pursuit which must constantly preserve the mind awake to the scenes presented to it ; and the beauty, the majesty,

and the sublimity of the great forms of nature, must necessarily be enhanced by the contemplation of their order, their mutual dependence, and their connexion as a whole.

*Oryctology* is the science which teaches the natural history of those animal and vegetable substances which are dug out of the earth in a mineralized state. By this science, we obtain not only a knowledge of the peculiar beings which dwelt on this planet in its antediluvian state, but we also acquire a more correct knowledge of the structure of the globe itself. Among these we find the remains of several animals not known to exist : such as the BELEMNITE, part of a chambered shell, but formerly thought to be a *thunderbolt* ; the ENCRINITE, a petrified animal, formerly termed a *stone lily* ; the CORNU AMMONIS, a shell, formerly considered as a *petrified snake* ; the MAMMOTH, an animal resembling the *elephant*, but possessing grinders much like to those of carnivorous animals, with numerous others, yielding additional proofs of the wisdom and power of the great Creator of all things.

But we must not confine ourselves while on this subject to the notice of the curious forms and wonderful nature of these bodies ; but must consider them with respect to the intelligence which they may convey respecting the formation of this globe. It was first remarked by Mr. WILLIAM SMITH, that certain fossils were peculiar to certain strata, and by extending his observations very widely, bearing this principle in view, he was able to determine that the identi-

lying of strata was most frequently capable of being effected by a view of the fossils which they contained.

These observations on the fossils yielded by the different strata formed the basis of Mr. SMITH's most useful and excellent map of this island, in which the nature of the *stratification of England and Wales* is carefully laid down. To verify the information offered in this work of immense labour, Mr. Smith, in consequence of pecuniary assistance derived from the government of this country, has deposited in the BRITISH MUSEUM the several specimens which he considers as peculiar to and characteristic of the different strata, and has placed them there in the order of stratification in which they were found.

In further illustration of the principle which he has taught, and to diffuse more generally the facts on which his opinions are established, he has published 'A Stratigraphical System of Organized Fossils;' as well as several numbers of a work entitled 'Strata identified by Organized Fossils,' in which the fossils are displayed on paper so coloured as to designate the peculiar nature of the stratum in which each fossil had been found.

Mr. PARKINSON having followed the track which had been pointed out by Mr. Smith, and having made numerous additions to the facts which Mr. Smith had been so successful in establishing, concludes his work on *Organic Remains* with the following observations.

Supposing the creation to have been performed in the order related in Genesis, and at particular periods, as is there stated, it becomes only necessary to

consider these periods as occurring at considerable indefinite lengths of time, to prove an exact agreement between that particular history and those phenomena which appear on examining the stratification of the earth. But quitting conjecture, I shall conclude with placing before you a recapitulation of the more important of those phenomena, which seem to demand more particular attention.

I. The outer part of this globe, examined to as great a depth as circumstances have permitted, appears to be formed of numerous strata differing from each other in their composition, many of them containing remains of organized bodies, and all of them appearing to have been formed by deposition from water.

II. These strata, which appear once to have been continuous, have been broken through their whole depth, and so dislocated, that some masses of the lower strata now form considerable elevations on the surface, and in many of these the superior strata are carried away.

III. *Coal* and traces of *vegetables*, with some particular marine animals, are found in the lowest strata that have been yet examined. In the other strata, up to the surface, the remains of the inhabitants of the water only are met with. Near to, and on the surface, only, are found the fossil remains of various land-animals; but, no where have yet been discovered any fossil remains of man.

IV. In some of the earlier strata, THE CUBROCHAL LIMESTONE, the remains of animals are found, the *cap* and *turban encrinite*, &c.; but no similar fossils are



seen in any of the succeeding superior strata, nor are any similar animals found in our present seas.

V. Some species of fossil animals (*pentacrinitæ*) occur in the LIAS, and are not seen in any of the succeeding superior strata, but a recent similar animal is found in our present seas.

VI. Some fossil animals (*ammonitæ*) are first seen in the LIAS and appear in most of the succeeding strata, but appear to have become extinct in the ocean which deposited the hard chalk.

VII. Some fossils (*belemnitæ*) appear in the early strata, and are continued upwards to the SOFT CHALK stratum, after which they are not seen.

VIII. Some fossils (*oval ammonitæ*, *scaphitæ*, &c.) are not known in the early strata, but occur in the HARD CHALK, and are not seen afterwards: as if they had been created at a comparatively late period, and had been soon afterwards suffered to become extinct.

IX. Some fossil shells (*trigonitæ*) are found in the LIAS and in MOST OF THE SUCCEEDING STRATA, and sometimes, but very rarely, in the hard chalk. After this they are not seen in the remaining superior strata, but of late years one species has been found in our present seas. This however requires some explanation. The *trigonitæ* are shells differing materially from any others in the structure of the hinge, and obtain therefrom the most decided generic characters. Until lately no shell of this genus was known in a recent state: one however has been found by M. Peron, in the South Seas; but this shell, although really of this genus, is of a different species from any shell which has been found in a fossil state. So that none

of the species of shells of this genus, which are known in a fossil state, have, in fact, been found in any stratum above the hard chalk, or in our present seas.

X. In the SAND and in the BLUE CLAY above the chalk, many species of shells occur, of which not one is to be seen in the preceding strata ; but of which several approximate to those in the present seas.

XI. In the GRAVEL, lying on the blue clay, *shells* are found which differ from those of any of the preceding strata, and nearly agree with our recent shells.

XII. In these UPPER and LESS ANTIEN'T STRATA are found the fossil remains of *land animals* ; and on this surface, which bears the marks of considerable torrents, are disposed, at least in this island, the present inhabitants.

Does it not appear from this repeated occurrence of new beings, from the late appearance of the remains of land animals, and from the total absence of the fossil remains of man, that the creative power, as far as respects this planet, has been exercised, continually, or at distant periods, and with increasing excellence, in its objects, to a comparatively late period ; the last and highest work appearing to be *man*, whose remains have not yet been numbered among the subjects of the mineral kingdom<sup>1</sup> ?

Here we perceive, from the circumstances under which these fossil bodies have been found, that Mr. Parkinson has offered another hypothesis respecting the formation of the surface of the globe, and the

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<sup>1</sup> Organic Remains, vol. iii, p. 452-455.

creation of its several inhabitants, and which he thinks is in fair accordance with the Mosaic account.

But it must be observed that thus far he has not noticed that prominent circumstance in the Mosaic history of the first ages, the *deluge*. Here he seems to allow the existence of considerable difficulty ; for although, he observes, that not a single decided fossil relic of man has been discovered, yet he admits that traces are every where to be found of that deluge, by which the earth, with man, was said to be destroyed. ‘The fact, however, is,’ he says, ‘that although no remains of man are found, the surface of the earth, which is inhabited by man, displays, even at the present day, manifest and decided marks of the mechanical agency of violent currents of water. Nor is there a single stratum of all those which have been mentioned which does not exhibit undeniable proofs of its having been broken, and even dislocated, by some tremendous power, which has acted with considerable violence on this planet, since the deposition of the strata of even the latest formation.’—(*Organic Remains*, vol. iii, p. 451.)

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## OUTLINES OF MINERALOGY.

Nor to the surface of enlivened earth,  
 Graceful with hills and dales, and leafy woods,  
 Her liberal tresses, is thy force confined ;  
 But to the bowelled cavern darting deep,  
 The *mineral kinds* confess thy mighty power.  
 Effulgent, hence the veiny marble shines ;  
 Hence Labour draws his tools ; hence burnished War  
 Gleams on the day ; the nobler works of Peace  
 Hence bless mankind, and generous Commerce binds  
 The round of nations in a golden chain.

HYMN to the SUN.

On the first view of the science of mineralogy, it would seem one of the least attractive; but a closer inspection soon discovers it to be of the highest importance, and that from the fairest diamond or most brilliant ruby, down to the commonest sand or gravel of our footpaths, all merit our closest attention. Some conduce largely to our domestic comforts and commercial advantages in the form of fuel, as the various kinds of coal ; others are useful in medicine, as sulphur, arsenic, mercury, &c. Of the metals, man has availed himself, and with these, aided by the assistance of fire, is enabled to reduce the other parts of the creation to his use and purposes.

The name of *mineral*, in the strict sense of the word, denotes only such substances as are found in mines ; but the term is generally applied, in a more extended sense, to characterize that class of inorganic and inanimate bodies which form the solid mass, or rather the external covering, of the globe we inhabit, —so far at least as the labour of man has hitherto penetrated.

*Minerals*, like organized bodies, have a certain origin, progressively increase, and are subject to dissolution or decomposition of parts. But they arise merely by an accumulation of homogeneous or similar particles from *without* ; either by substances combining in consequence of their attractive power, which is called *cohesion* ; or by the solid particles being separated from the fluid ones, when the former attract each other, according to certain laws, constituting together a solid body ; and this is termed *crystallization*, a form of which only certain minerals are susceptible.

*Mineralogy* is that department of the science of nature which makes us acquainted with the characters of minerals. It teaches the art of distinguishing them by accurate and well defined characters ; the mode of describing them with so much precision as is sufficient to recognize them with facility whenever they occur, and the art of arranging or classing them in a certain order or system.

The *characters* of minerals in their most striking properties may be thus illustrated. (1.) *Fusibility* means the power of being melted. The most ready way to ascertain the fusibility of a mineral substance, is, by exposing a small particle of it to the flame of a candle or lamp concentrated by the instrument called a blow-pipe ; and, if the heat thus excited is sufficient to liquefy the mineral, it is said to be fused. (2.) The *hardness* of minerals is ascertained either by a comparison with each other, or by their power of scratching glass, or the effect of the file upon them : those which resist the file being the hardest. (3.) The

*phosphorescence* of minerals means the faint light which they emit, either by exposure to simple heat, or in consequence of friction. (4.) The *electricity* of a mineral is that property which, being excited either by simple heat or by friction, shows itself in the attraction or repulsion of other substances with which the mineral is brought nearly in contact. (5.) By the *specific gravity* of a mineral, is understood the amount of its weight, when compared with the weight of a quantity of water of the same bulk with itself. (6.) The *crystalline* forms under which minerals occur are various, and may be considered as one of their most important characters, being, with some few exceptions, resolved into six principal forms.

Mineralogy is chiefly employed in arranging similar bodies under the same, and dissimilar bodies under different denominations, and it judges of them by external appearances or internal compositions. (1.) *External characters* are discovered by observing the figure, colour, texture, fracture, or other properties which the different bodies present to our senses, without undergoing any material alteration. (2.) *Internal constitution*. This knowledge is acquired chiefly by regarding the changes produced in them by the *chemical actions* of other bodies.

Mineralogy, like almost every other science cultivated in modern times, while its boundaries have been extended, and its principles greatly improved, has been rendered more subservient than formerly to various important purposes of economy and art. Instead of being considered, as it once was, a low and trifling object of study, it has lately begun to be

viewed as dignified in its nature, and most interesting in its relations. It is now regarded as a valuable and indeed necessary handmaid to *medicine*, *agriculture*, and a large portion of the *manufactures*, which supply the conveniences, comforts, or luxuries, of human life. Mineralogy has, therefore, within a few years past, been cultivated with great diligence and success by almost all the nations in Europe, especially in *Germany* and *Sweden*, where splendid mineral riches particularly invited inquiry and application. Societies have been formed for extending and improving the science; travellers have explored foreign countries for the same purpose; distinguished eminence in this branch of knowledge has been rewarded by public esteem, and by civil honours; and the most effectual methods used to direct general attention to the subject.

In describing the present state of mineralogical science, it may be observed, in the words of Mr. Kirwan, that within a few years ‘precise lines of information have been traced, even in the minuter subdivisions of the science; the gross indications of the unassisted senses, freed from their attendant fallacies, have been pressed into its service; the more refined chemical tests, still further perfected, have been rendered more conclusive; many new species brought to light; the catalogue of the elementary substances nearly completed; and the great art of analysis, extended far beyond its former limits, now nearly approaches the precision of an algebraic formula.’

The introduction of the *blow-pipe* is an important æra in the history of mineralogy. The great value of this invention, in chemical and mineralogical inquiries,

will appear from considering that the most intense degree of heat may be obtained by it, with the utmost conveniency, in a few minutes, which can scarcely be obtained by means of a crucible in many hours.

*Analytical Mineralogy*, or the analysis of minerals, is a branch of philosophical chemistry. It teaches the art of examining minerals, not by the help of external characters, but chiefly by chemical agencies. Its views are directed to the developement of the constituent parts of minerals, the order in which they are present, their relative quantities, and the best modes of separating them. *Mineral waters* are found in those places where there is an abundance of iron, copper, sulphur, and pit-coal. Hence their taste and effects are different, in proportion as they are more or less impregnated with the above principles. They are also subject to other impregnations, and from their salubrious effects in some diseases, when containing different salts, iron, and sulphur, many of these waters have been successfully employed in medicine, and have been termed *medicinal*.

Of the *origin* of minerals, it is not within the limits of this Introduction to state all the various opinions; nor would it be of much use. For the sake of poetical illustration on a subject not naturally susceptible of this embellishment, it may suffice to observe, that some philosophers have attributed the formation of minerals to the action of the sun without; some, to the influence of the central fire within; and some think that cold is the productive cause, by uniting, condensing, and congealing certain juices of the earth. To the first two opinions Dr. Yalden alludes in the following lines :—



Through dark retreats pursue the winding ore,  
 Search Nature's depths, and view her boundless store;  
 The secret cause in tuneful numbers sing,  
 How metals first were framed, and whence they spring:  
 Whether the active sun, with chymic flames,  
 Through porous earth transmits his genial beams;  
 With heat impregnating the womb of night,  
 The offspring shines with its paternal light:  
 Or whether, urged by subterraneous flames,  
 The earth ferments, and flows in liquid streams;  
 Purged from their dross, the nobler parts refine,  
 Receive new forms, and with fresh beauties shine:—  
 Or whether by creation first they sprung,  
 When yet unpoised the world's great fabric hung:  
 Metals the basis of the earth were made,  
 The bars on which its fixed foundation's laid:  
 All second causes they disdain to own,  
 And from th' Almighty's fiat sprung alone.

Thomson, in his beautiful 'Hymn to the Sun,' extends the penetrating influence of that luminary, not to the formation of metals only, but to the production also of the precious stones. See this quoted in pp. xlii.

Minerals are usually arranged under four classes; earthly, saline, inflammable, and metallic<sup>1</sup>.

<sup>1</sup> This is the arrangement of Professor *Werner*, and approaches much nearer to a natural order than that of *Haiiy*. He distributes all the known mineral substances among four classes. The first comprehends the *acidiferous* bodies, being those into the composition of which any acid enters; this is again subdivided into four orders, according as the acid is either free or combined with an earth, with an alkali, or with a compound alkalino-earthly base. The second class, entitled *earthy* substances, is not subdivided into orders or genera, but consists of forty-two species, with an appendix of twenty-six other substances, the claims of which to the rank of species are considered as dubious. The third class takes the *non-metallic combustibles*,

**I. Earthy.** This class is distinguished by its being in general brittle, not remarkably heavy, as usually possessing white or light colours, disposed to crystallize, unflammable in a low temperature, insipid, and inodorous. The *earthy* minerals are either **SILICEOUS**, in the form of *pebbles, gravel, sand, sand-stones, pudding stones, &c.*; or are **CALCAREOUS**, as *limestone, chalk, spar-marble, alabaster, &c.*; or **ARGILLACEOUS**, as *clay, fullers' earth, lithomarga, boles, slate, &c.*; or **MAGNESIAN**, as *steatites, asbestos, serpentines, &c.*; or **BARYTIC**, as the *baroselemite* or *ponderous spar, &c.* In these compounds, in which more than one of the earths are found, the earth from which each substance derives its genuine distinction is most abundant, so there are also others in which the earths **STRONTIA**, **YTTRIA**, and **JARGONIA**, are most predominant. Most of the **PRECIOUS STONES** are compounds, in which different combinations of one or more of the other earths, *lime, alumine, magnesia*, and sometimes a small portion of *iron*, are united to a large portion of pure quartz, or *silex*, in a crystalline form; hence result the *opal, garnet, catseye, onyx, sardonyx, &c.*

The *ruby* has been found to be formed of alumine and magnesia, with chromic acid, and the *emerald* is supposed to be the same compound with the acid in a

The fourth and last class is the *metallic*, in which the native metals and their ores are arranged in three orders, denoting the difficulty or ease with which they are reduced to the metallic state, and these orders are again subdivided into twenty-two genera. Mr. *Arthur Aikin* disapproves of both these systems, points out their deficiencies, and endeavours to supply them in his *general synopsis*. See his useful 'Manual of Mineralogy,' 12mo, the Introduction to which is highly valuable to the student.

different degree of oxidyzement: The *chrysolite* appears to be composed of lime and the phosphoric acid.

Th' unfruitful rock itself, impregn'd by thee<sup>a</sup>,  
 In dark retirement forms the *lucid stone*.  
 The lively *diamond* drinks thy purest rays,  
 Collected light, compact; that, polished bright,  
 And all its native lustre let abroad,  
 Dares, as it sparkles on the fair-one's breast,  
 With vain ambition emulate her eyes.  
 At thee the *ruby* lights its deepening glow,  
 And with a waving radiance inward flames.  
 From thee the *sapphire*, solid ether, takes  
 Its hue cerulean; and, of evening tinct,  
 The purple-streaming *amethyst* is thine.  
 With thy own smile the yellow *topaz* burns;  
 Nor deeper verdure dies the robe of Spring,  
 When first she gives it to the southern gale,  
 Than the green *emerald* shows. But, all combined,  
 Thick through the whitening *opal* play thy beams;  
 Or, flying several from its surface, form  
 A trembling variance of revolving hues,  
 As the site varies in the gazer's hand.

THOMSON.

II. The class of *saline* minerals is characterized by being moderately heavy, white, sapid, soft, and possessing some degree of transparency.

III. The characters of the *inflammable* class are, lightness and brittleness: the individuals in this class are mostly opaque, scarcely ever crystallized, and do not feel cold. Here may be placed the *bitumens*, *amber*, *jet*, *petroleum*, *coal*, &c. In this class may also the *diamond* be placed.

IV. The *metallic* class contains many genera, characterized by opacity and great specific gravity: they generally possess a peculiar lustre, are tough, and in some degree malleable, cold, and not easily inflamed.

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<sup>a</sup> The Sun.

## Metals.

And now the regions deep explore,  
 Where *metals* ripen in vast cakes of ore.  
 Here, sullen to the sight, at large is spread  
 The dull unwieldy mass of lumpish *lead*.  
 There, glimm'ring in their dawning beds, are seen  
 The light aspiring seeds of sprightly *tin*.  
 The *copper* sparkles next in ruddy streaks ;

\* \* \* \*

The *silver* then, with bright and burnished grace,  
 Youth and a blooming lustre in its face,  
 To th' arms of those more yielding metals flies,  
 And in the folds of their embraces lies. GARTH.

The limits of our Introduction precluding us from noticing more at length the three first classes of minerals, we shall confine our attention to a short account of the METALS. The most popular and pleasing description of them, and the best adapted to the purposes of our volume, we find in a valuable work lately published by MR. GEORGE GRAVES, entitled the '*Naturalist's Pocket Book*, p. 307 ; from this interesting publication, therefore, we select the following slight sketch.

The metals having never been decomposed, are supposed, when pure, to be simple substances. The number of known metals is *twenty-seven* : they are found in a native state, either *simple*, consisting of only one substance ; or *compound*, when composed of two or more substances. All the metals are much heavier than the earths, the heaviest of the latter not exceeding five times the weight of water, and the

lightest of the metals being six times heavier than water. Those metals that are capable of extension by being beaten with the hammer, are termed *malleable*; and those which do not possess this property are called *brittle*. The malleability of metals adds greatly to their usefulness, and, being fusible, man is enabled to free them from earths and extraneous substances: without these properties, he could hardly reduce them to his service.

### MALLEABLE METALS.

1. *Platina*. This is the heaviest of metals, being twenty-three times heavier than water; its colour is a dull tin white; it is capable of great extension, but is difficult of fusion; in hardness it nearly equals iron. This metal is principally confined to South America; it is usually found in small grains, mostly in the vicinity of the gold mines; it is met with alloyed with magnetic iron, gold, copper, lead, and several other metals.

2. *Gold* is nineteen times heavier than water, is very soft, ductile, and flexible; its colour varies from pale yellow to deep orange; it is capable of great extension, and its tenacity is very great. Gold is generally mixed with some other metal, as tin, copper, silver, &c.; it is found in veins, in the beds and sands of rivers and mountain streams, in several parts of Europe, Asia, Africa, and America: from South America we obtain the greater part of the gold now in use; it occurs in small grains or lumps, from the weight of a few grains to fifty pounds; it sometimes, though but rarely, occurs in this kingdom, as also in

Ireland. The gold coin current in Great Britain is composed of twenty-two parts of gold, and two of copper.

3. *Silver*, in a pure state, is ten times heavier than water; is soft, opaque, and flexible; white, shining, and very malleable. Silver is more abundant than gold, being dispersed through most countries; it occurs in a pure state, as also combined with copper, lead, and other metals. English coin contains fifteen parts of silver to one of copper: the purposes to which this metal is applicable are too well known to require repetition.

4. *Mercury* or *Quicksilver*. Mercury is thirteen times heavier than water; it generally occurs in a pure state, and also combined with silver, which it resembles in colour; but the peculiarity which distinguishes it from other metals, is the fluidity it preserves at the common temperature of the atmosphere. This is less abundant than the last: the uses to which it is applicable in medicine, the arts, and experimental philosophy, are numerous; and it is highly valuable in the separation of gold and silver from their ores, which process is termed amalgamation.

5. *Lead* is of a blueish grey colour; it is upwards of eleven times heavier than water; is soft, malleable, ductile, but inelastic. Next to iron, lead is the most extensively dispersed, and is one of the most abundant of metals; it has never been found pure, but mostly combined with iron, manganese, antimony, silver, or their ores. The lead used for common purposes is obtained from an ore called *Galena*, or sulphuret of lead, which is composed of lead, sul-

phur, oxyde of iron, and silver, and sometimes it contains lime and silex. Among the various uses to which it is applied, is the glazing earthenware; the oxyde of lead is used in making glass; and, combined with one-fifth part of antimony, it forms the types used in printing.

6. *Copper.* When pure, copper is about eight times heavier than water; its colour is a yellowish red; it is exceedingly sonorous, is harder than silver; and in respect to fusibility is between gold and iron. Copper in point of usefulness yields only to iron; it is widely dispersed, being found pure, and also combined with various mineral substances; it is used, as already observed, for alloying gold and silver. Copper alloyed with zinc, forms brass, pinch-beck, and tinsel; with a small proportion of tin it forms bell-metal; two-thirds of copper and one of tin are used in forming the speculums in reflecting telescopes: copper filings, or plates oxydized by acetic acid, forms into green crystals, which are used in painting, under the name of verdigrease or verdigris.

7. *Tin.* This metal has never been found pure, being generally combined with copper, sulphur, iron, &c.; it is about seven times heavier than water. Tin is the lightest of the ductile metals; it is harder and more tenacious than lead, and is very fusible. Tin is used as an alloy with various other metals; it is formed into exceedingly thin plates or leaves, under the name of tin-foil, and this, combined with mercury, is used for silvering the backs of mirrors and looking glasses. Tin is also used for the purpose of lining copper vessels for domestic purposes; this is

done by heating the vessels, having previously scraped the inside with an iron instrument, and then rubbing the internal surface with sal ammoniac: when the vessel is quite hot, a small quantity of pitch or resin is thrown in and suffered to spread entirely over the internal surface, which completely prevents the copper from oxydizing, as tin will not combine with oxyde of copper. When these preparatory measures are taken, a piece of pure tin is applied all over the inside of the hot copper vessel, which instantly assumes a bright silvery whiteness, and prevents any unpleasant effects in using tinned copper vessels for ordinary purposes. Most of the saucepans, &c. used for kitchen purposes, under the name of tin ware, are formed of thin plates of iron, coated with tin; these are first scoured, and then thrown into a solution of sulphuric acid, which destroys all the rust or oxyde, and renders the surface perfectly clear; the plates are then dipped into melted tin, the surface of which is covered with oil or fat to keep it from the action of the air; by these means the iron coming in contact with the pure melted tin, it comes out completely coated, the tin frequently penetrating the substance of the iron.

8. *Iron.* This is one of the most abundant of metals, being found in almost every rock and soil; it is about seven times heavier than water, of a blueish or reddish grey colour, is hard, ductile, and malleable, and in tenacity is next to gold. Iron is found combined with numerous minerals, and forms a principal part of those substances known under the name of meteoric stones; it is magnetic, and so



easily is this property imparted to iron, that a bar placed in a vertical position for a considerable time acquires polarity, which may also be communicated to it by suddenly striking it at the point against any hard substance; for instance, if a common poker be struck forcibly on a hearth, the point of contact becomes polar. The uses of iron are numerous, and are so well known as not to require repetition: without it man could scarcely subsist in a civilized state, as it forms the principal part of his agricultural, domestic, and mechanical implements.

9. *Zinc* is about seven times heavier than water; it is of a colour between silver and lead; is hard, but not so ductile as some of the preceding metals. Zinc is less abundant than most of the foregoing metals; it has not been met with pure, being either mineralized with sulphur, or combined with oxyde of iron, silex, &c. It enters into many alloys; preparations of it also are used for medicine, and in the arts.

10. *Palladium*. When pure it is eleven times heavier than water; it resembles platina in colour, is very malleable, and equal in hardness to bar iron. This metal is generally obtained in small quantities, alloying native platina. Native palladium is infusible.

11. *Nickel*. The specific gravity of nickel is about nine; its colour is yellowish white, it is ductile, malleable, and possesses the magnetic property, though in a less degree than iron. Nickel has been found combined with iron and other substances, and enters into the composition of all the meteoric stones.

which have fallen from the atmosphere, in this and various other countries ; its uses are principally confined to alloys.

### BRITTLE METALS.

12. *Arsenic*. Specific gravity nearly eight ; colour blueish or greenish white ; becoming, on exposure to the air, dark, almost black ; its substance is exceedingly brittle ; it occurs nearly pure, and also combined with gold, silver, iron, lead, &c. Arsenic is one of the most active of mineral poisons ; it is of frequent occurrence ; is used in glazing porcelain, and the manufacture of glass : when combined with sulphur in certain proportions, it is either the *realgar* or *orpiment* used by painters. Its presence may be detected by submitting it to the action of heat, or striking it with a hammer, when it gives out a garlic-like smell ; it is also remarkable that the same appearance is produced on silver and steel by the application of arsenic, as by the application of onion or garlic.

13. *Antimony*. This metal is of a dull whitish colour, of a brittle and compact substance, and is about six times heavier than water. Antimony is a metal frequently used in various arts ; as we before remarked, it forms one-fifth of the composition of printing types ; it is used in medicine, and for alloys with other metals : it occurs combined with arsenic, silver, iron, sulphur, &c.

14. *Bismuth*. Pure bismuth is of a white colour, tinged with red ; its substance is brittle, and it is nearly eleven times heavier than water. This is not

abundant ; in its native state it is mostly alloyed with arsenic, it is also found combined in the ores of silver, iron, cobalt, and zinc. The principal use made of this metal is for alloys, also as an ingredient in soft solders, being one of the most fusible of metals : a preparation of bismuth is sometimes used by painters in water colours ; on paper it has a bluish tinge, but, like arsenic, becomes blackish on exposure to the air, and particularly if the air be impregnated with any foetid or offensive effluvia.

15. *Cobalt*. The weight of this metal is about eight times that of water ; its colour is grey with a tinge of red, and it is very difficult of fusion. Cobalt is not found pure ; its ores being sometimes combined with arsenic and sulphur, or arsenic and iron, and accompanying the ores of copper, silver, arsenic, and bismuth. It is brought to this country reduced to an oxyde of a most brilliant blue colour, called zaffre, which, when melted with three parts of sand and one of potash, forms blue glass : this reduced to a fine powder is known by the name of smalts, and is used for giving a blue tinge to various substances, as paper, cloth, linen, muslin, &c. ; likewise in painting on porcelain, and also in oil and water.

16. *Manganese*. Manganese is about seven times heavier than water ; its colour is a rusty grey ; it is brittle, in a slight degree malleable, and is never found pure. The ores of this metal are frequently met with in mineral countries, and, in a state of oxyde, is found combined with a very considerable number of earthy and mineral substances. The black oxyde of manganese affords all the oxygen used by the chemist,

and likewise the oxygen in the composition of the oxymuriatic acid, so essential to the bleacheries of Europe. It is also used in glass-making, and a beautiful violet colour is obtained from it, which is employed in painting porcelain.

17. *Tellurium*. This is a rare metal, it is about six times heavier than water ; is very fusible, brittle, and of the colour of tin. Tellurium is found in a metallic state, but always alloyed by some other metal, as gold, lead, copper, &c.

18. *Titanium*. This metal is of a reddish copper colour, and so extremely difficult of fusion, that attempts to reduce it to a pure metallic state have rarely succeeded. It is found combined with oxyde of iron, manganese, silex, &c. ; it was formerly employed in painting on porcelain, but has fallen into disuse from the want of uniformity in its colour.

19. *Tantalum* is a very rare metal ; it is about six times heavier than water ; its external surface has a slight metallic lustre, but the interior is dull and nearly black. Tantalum has only been found in Sweden and Finland, combined with the oxydes of iron and manganese, as also with the rare earth Yttria.

20. *Molybdena*. Like the last this is exceedingly rare, has never been found pure, and is with difficulty reduced to a pure state, having only been obtained in brittle infusible grains. It is found in a mineral state combined with sulphur, and in the acid state with lead.

21. *Tungsten*. This is a hard, brittle, granular metal, of a light steel grey colour, and brilliant metallic lustre. It is found combined with oxyde of iron,

manganese, and silex, and occurs in most places abounding with tin : it has been used with other substances in the formation of red colours known by the name of lakes.

22. *Chrome*. This substance has never been found in a metallic state, only entering into the composition of some few substances : the emerald is supposed to owe its brilliant green colour to its combination with this rare metal.

23. *Rhodium*. This metal is not malleable ; it possesses a bright metallic lustre, and is about eleven times heavier than water.

24. *Osmium* is of a dark grey colour.

25. *Iridium*, when pure, is white and infusible. The three last named metals are very rare, having only been found alloying the native platina of Peru, and have not been applied to any useful purpose.

26. *Uranium* has never been found in a metallic state ; its colour is dark grey, its substance is brittle, and may be cut with a knife ; it is the lightest of all metals excepting tellurium, being only six times heavier than water. It has not been applied to any use.

27. *Cerium*. This, like the last, has never been found in a metallic state, and has only been obtained with considerable difficulty by the chemist : it enters into the composition of a few rare minerals.

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For some useful hints to collectors of minerals, see the *Naturalist's Pocket Book*, p. 323. To the student in Mineralogy, who wishes for a popular and intelligible guide, we have no hesitation in recommend-

ing Mr. Phillips's *Outlines of Mineralogy*, 12mo, 2d edition; *Outlines of Mineralogy and Geology*, by the same author; and *Aikin's Manual*, all of them excellent publications.

MR. PARKINSON'S '*Organic Remains of a former World*' are an inexhaustible fund of instruction and delight to the geologist and mineralogist. This grand work is a *unique* in these departments of science, and is as remarkable for the deep and learned research which it displays, as for the beautiful and highly accurate engravings with which it is embellished. It is a *national* ornament; and resembles more the splendid works that have issued from the continental press, under *imperial* patronage, than a book produced by the unassisted, but unremitting, exertions of an *individual*—an active member, too, of a harassing and laborious profession.

We shall conclude this Introduction with some reflections on the pleasing nature of the study of mineralogy. The wonderful form of common salt, the precious stones, the singular shapes of the ores or metals in their mineral state, the astonishing particulars relative to extraneous fossils, and a variety of inexhaustible objects of inquiry in the mineral kingdom, seem eminently constituted to excite our curiosity. Were we to live for ages in this world, and to employ every day in studying the singularities of the *mineral kingdom only*, we should still find innumerable objects which we could not explain, which would stimulate more and more our researches, and yet continue inscrutable by our finite capacities. Let us well employ, then, the short time that is granted to

us here, and devote as much of it as the necessary duties of life will permit to the *study of Nature*; and, by thus enriching our minds, treasure up the most innocent and the most inexhaustible stores of knowledge and pleasure. The exquisite delight which such studies afford will be still further heightened in proportion as we meditate on the ends which the Creator has proposed in his works; for the wonders of Nature are far above every, the most admirable, production of human art. These are not always compatible with our welfare; and, so far from rendering us either wiser or better, they are often the mere objects of un-instructive admiration. But all the works of Nature, even the most singular and inexplicable, have for their object the felicity of the whole creation. They exist, not merely to be contemplated as objects of sight, but to be enjoyed; and all, without exception, proclaim unspeakable goodness, as well as unsearchable wisdom and unbounded power.

Oh, NATURE, all-sufficient, over all !  
Enrich me with the knowledge of thy works !  
Snatch me to *heaven* ; thy rolling wonders there,  
World beyond world in infinite extent,  
Profusely scattered o'er the blue immense,  
Show me ; their motions, periods, and their laws,  
Give me to scan ; through the disclosing deep  
Light my blind way ; *the mineral strata there* ;  
Thrust, blooming, thence the vegetable world ;  
O'er that the rising system, more complex,  
Of *animals* ; and higher still, the mind,  
The varied scene of quick-compounded thought,  
And where the mixing passions endless shift ;  
These ever open to my ravished eye—  
A search the flight of time can ne'er exhaust !

THOMSON.

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Fixed in their orbits thro' unmeasured space,  
The glitt'ring hosts of Heav'n their paths perform,  
And, ever glowing in th' etherial race,  
Midst sweeping whirlwinds and the raging storm ;  
Yet silent in rotation as they run,  
And bringing back the days, the months, the years,  
Still, as they journey round the *central Sun*,  
Sweet is the sound and concord of the spheres !  
Then, if in higher bodies thus confest,  
So soft's the music that from order flows,  
Why should not harmony inform the breast,  
When such the unison that Heav'n bestows ?  
Throughout his various works has God designed  
One rule of judgment—one consent of mind !

BECKFORD.

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Surely the varieties of created beings were formed for  
—the inward soul, as well as for the outward senses. He was  
a true philosopher, who, being asked how he could endure  
life without the pleasure of books, answered, the **WORKS**  
OF CREATION were his **LIBRARY**, wherein, when he pleas-  
ed, he could muse upon God's deep oracles.—**FELTHAM.**

O how canst thou renounce the boundless store  
Of charms, which **NATURE** to her votary yields?  
The warbling woodland, the resounding shore,  
The pomp of groves and garniture of fields;  
All, that the genial ray of morning gilds,  
And all, that echoes to the song of even;  
All, that the mountain's sheltering bosom shields,  
And all the dread magnificence of heaven;  
O how canst thou renounce, and hope to be forgiven?

**BEATTIE.**

The greatest pleasure the mind is capable of in this life,  
is in the **CONTEMPLATION OF GOD AND NATURE**, the sweet-  
ness of Philosophy, and the Discourse of Reason.

**FELTHAM.**

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# TIME'S TELESCOPE

FOR

## 1818.

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### JANUARY.

THE name given to this month by the Romans was taken from *Janus*, one of their divinities, to whom they gave two faces ; because on the one side, the first day of this month looked towards the new year, and on the other towards the old one. It was called *wolf-monat* by our Saxon ancestors, on account of the danger then experienced from wolves ; ' for that, through the extremity of cold and snow, those ravenous creatures could not find of other beasts sufficient to feed upon.'

### Remarkable Days

In JANUARY 1818.

#### 1.—CIRCUMCISION.

THIS festival was instituted in the sixth century. At the commencement of the new year we rejoice with our friends, at having escaped the dangers that attend every season, and commemorate the event by some trifling present.

The Romans, at this time, sent presents of sweetmeats, as dried figs, honey, &c. (*strenæ*), expressing a wish that their friends might enjoy the sweets of the year into which they had entered. A relic of this custom is still observed in the south of

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Scotland, where the *sweetie-skon*, a sort of plum-cake, constitutes the New Year's Gift. Among the *northern nations*, it was customary for subjects to present gifts to their sovereigns, which were called *jolagiafir*, yule-gifts. In France, particularly in the south, early in the morning of New Year's Day, a round of visits is commenced to relations and friends, to wish them a happy new year, and to present them with *bombons* (sweetmeats).—See T.T. for 1815, p. 2.

The antient custom of going about with the *wassail*, 'a howl of spiced ale,' is yet retained in many places. The composition was ale, nutmeg, sugar, toast, and roasted crabs or apples, and was called lamb's wool. Some verses still sung in Gloucestershire, on this day, may be seen in our volume for 1814, p. 3.

The origin of the term *wassail* is to be sought for in the well-known story of Vortigern and Rowena, or Ronix, the daughter of Hengist; the earliest authority for which is that of Walter Calenius, who supplied the materials for Geoffrey of Monmouth's history. He relates that on Vortigern's first interview with the lady, she kneeled before him, and, presenting a cup of wine, said to him, 'Lord king, *wacht heil*,' or, in purer Saxon, *was hæl*; literally, be health, or health be to you! As the king was unacquainted with the Saxon language, he inquired the meaning of these words; and being told that they wished him health, and that he should answer them by saying *drinc heil*, he did so, and commanded Rowena to drink. Then taking the cup from her hand, he kissed the damsel and pledged her. The historian adds, that, from that time to his own, the custom remained in Britain, that whoever drank to another at a feast said *wacht heil*, and he that immediately after received the cup answered *drinc heil*.

\*1. 1515.—LOUIS XII DIED.

Although the public events of the reign of Louis XII afford no very high ideas of his talents for govern-

ment, yet he possessed so many private virtues and amiable qualities, that he is always ranked among the best of the French monarchs. The title of 'Father of his people' was given him by the assembled states of his kingdom; and history has taken pleasure in recording, that when, according to the custom, the cryers announced his death, it was done in these words: 'The good king Louis, the father of his people, is dead.' He appears to have been sincerely desirous of alleviating the burthens of his subjects, and would, probably, have done it effectually, had it not been for the wars into which he was unfortunately plunged. He was naturally inclined to economy, and held as a principle, that 'the justice of a prince obliged him to owe nothing, rather than his greatness to give much.' And when his frugality was made a topic of public ridicule, he said, 'I had rather see my courtiers laugh at my avarice, than my people weep at my extravagance.' In his manners and conversation Louis was affable, mild and cheerful, prone to sallies of innocent pleasure, and fond of literature. He assembled men of learning at his court, and employed them in foreign affairs. Greek was first taught at the French universities in his reign.

#### 6.—EPIPHANY.

The rites of this day, the twelfth after the Nativity, are different in various places, though the object of them is much the same in all; namely, to do honour to the memory of the Eastern magi, who, according to a tradition of the Romish church, were three in number, and of royal dignity. The usual celebration of Twelfth-day, in the metropolis and in the south of England, is by drawing lots, and assuming fictitious characters for the evening:—formerly the king or queen was chosen by a *bean* found in a piece of divided cake; and this was once a common Christmas gambol in both the English Universities.

The day after Twelfth Day was called St. Distaff's Day. The customs on this day in Northumberland,

France, and at Rome, are described at length in T. T. for 1815, p. 5.

\*6. 1800.—REV. WM. JONES, OF NAYLAND, DIED.

In all the writings of this eminent divine, whether religious, philosophical, or in natural history, the *christian* is eminently conspicuous. His *Physiological Disquisitions*; those on *Fossils*; and his three *Sermons on the Philosophy of Botany, of Animals; and of the Earth*; with that on the *Natural Evidences of Christianity*; will ever be a rich mental repast to the Christian naturalist.

8.—SAINT LUCIAN.

Lucian, a native of Syria, was celebrated in his youth for his eloquence, and intimate acquaintance with polite literature. After the death of his parents, he gave all his fortune to the poor, and confined himself to the study of the scriptures. He was a proficient in Hebrew, and revised the Septuagint version of the Bible. He wrote an apology for the Christians, and presented it to Maximinus II. After having undergone various torments, at the instigation of this emperor, he was martyred in the year 312.

\*10. 1645.—LAUD, ABP. OF CANTERBURY, DIED.

Speaking of his learning and morals, Hume observes, 'he was virtuous, if severity of manners alone, and abstinence from pleasure, could deserve that name. He was learned, if polemical knowledge could entitle him to that praise.' Though he was an avowed Protestant, 'the genius of his religion was, though in a less degree, the same with that of the Romish. The same profound respect was demanded to the sacerdotal character, the same submission required to the creeds and decrees of synods and councils, the same pomp and ceremony was effected in worship, and the same superstitious regard to days, postures, meats, and vestments.' In his government of the church he displayed a total want of charity towards those who had made the least opposition to the doctrines and ceremonies established by authority; and, under his coun-

tenance, the Star-chamber wore all the horrors and exercised all the cruelties of an inquisition. In state affairs, his counsels were high and arbitrary, and he was extremely active in promoting those desperate measures and illegal projects, which ultimately proved the ruin of the king and constitution. But every medal has its reverse. We must not forget to mention his care of the ecclesiastical edifices, his reparations of St. Paul's Cathedral, and his generosity and munificence to the *University of Oxford*, as displayed in the many noble buildings which he erected, and the expensive collection of books and MSS. which he presented to it.

\*11. 1753.—SIR HANS SLOANE DIED,  $\text{\AA T. 92.}$

He was first physician to George II, and many years president of the Royal Society. His immense collection of books, manuscripts, and curious productions of nature and art, now form a most valuable part of the British Museum. His library consisted of 50,000 volumes; and his catalogue contained a description of 69,352 curiosities; a treasure which he said was destined to magnify God and benefit mankind. The beautiful botanical garden at Chelsea was left by him to the Company of Apothecaries, on condition of their introducing every year fifty new plants, till their number should amount to 2000. Sir Hans Sloane was born at Killileagh in Downshire, in the north-east part of Ireland; and was buried in Chelsea churchyard, where his tomb is still in tolerable preservation. It is surmounted by the mystic symbols of the egg and the serpent in a good style of sculpture.—See *Butler's Chronological Exercises*, p. 23.

12.—PLOUGH MONDAY.

On this day, or about this time, in the north, the *fool-plough* goes about, a pageant that consists of a number of sword-dancers, dragging a plough, with music, and one, sometimes two, in a very fantastic dress; the *Bessy*, in the grotesque habit of an old woman, and the *fool*, almost covered with skins,

wearing a hairy cap, and the tail of some animal hanging from his back. The office of one of these characters is, to rattle a box among the spectators of the dance, in which he collects their little donations.

The fool-plough, in Germany, is somewhat different. In Franconia, young women are yoked to the plough, upon which a piper sits and plays; and the ladies are then dragged into some river or pool.

### 13.—SAINT HILARY.

Hilary was born at Poitiers in France, of an illustrious family; and of this place he was chosen bishop in the year 353. Having taken an active part against the Arians, he was banished to Phrygia, by order of the Emperor Constantius, in 356, where he remained for three years. After various travels in different parts, and many sufferings, Hilary died at Poitiers in 368. He was an excellent orator and poet; his style abounds with rhetorical figures.

### \*14. 1753.—BISHOP BERKELEY DIED.

This eminent man, so celebrated for his metaphysical dissertations, was also intimately acquainted with the arts and business of common life. Mechanic operations, and the processes by which crude materials are meliorated and manufactured; the maxims of trade, and its connections with agriculture, were all familiar to him. That his genius was capable of embracing those scenes and emotions of which the lively conception forms poetical ability, is evident not only from various animated letters which are to be found in the collection of Pope's works, but also from several compositions in verse, particularly some stanzas written at the time when he was looking towards Bermudas, with what he supposed to be an encouraging certainty that his favourite scheme would take place.—See his *Works*, vol. ii, p. 443.

### 18.—SEPTUAGESIMA SUNDAY.

The institution of this and the two following Sundays cannot be traced higher than the beginning of

the sixth or the close of the fifth century. 'When the words Septuagesima, Sexagesima, and Quinquagesima (seventieth, sixtieth, and fiftieth), were first applied to denote these three Sundays, the season of Lent had generally been extended to a fast of six weeks, that is, thirty-six days, not reckoning the Sundays, which were always celebrated as festivals. At this time also, the Sunday which we call the first Sunday in Lent was styled simply, *Quadragesima*, or the fortieth, meaning, no doubt, the fortieth day before Easter. *Quadragesima* was also the name given to the season of Lent, and denoted the quadragesimal or forty days' fast. When the three weeks before *Quadragesima* ceased to be considered as weeks after the Theophany (or Epiphany), and were appointed to be observed as a time of preparation for Lent, it was perfectly conformable to the ordinary mode of computation to reckon backwards, and, for the sake of even and round numbers, to count by decades.'—(*Shepherd.*)

#### 18.—SAINT PRISCA.

Prisca, a Roman lady, was early converted to Christianity; but refusing to abjure her religion, and to offer sacrifice when she was commanded, was horribly tortured, and afterwards beheaded, under the Emperor Claudius, in the year 275.

#### 20.—SAINT FABIAN.

St. Fabian succeeded St. Anterus in the pontificate, in the year 236. Eusebius relates, that, in an assembly of the people and clergy, held for the election of a pastor in his room, a dove, to the great surprise of all present, settled on the head of St. Fabian; and that this miraculous sign united the votes of the clergy and people in promoting him, though a layman and a stranger. He governed the church sixteen years, sent St. Dionysius and other preachers into Gaul, and condemned Privatus, the promoter of a new heresy in Africa, as appears from St. Cyprian. St. Fabian died a glorious martyr in the persecution



of Decius in 250, as St. Cyprian and St. Jerom bear witness. The former, writing to his successor, St. Cornelius, calls him an *incomparable man*; and says, that the glory of his death was equal to the purity and holiness of his life.

#### 21.—SAINT AGNES.

St. Jerom says, that the tongues and pens of all nations are employed in the praises of this saint, who overcame both the cruelty of the tyrant and the tenderness of her age, and crowned the glory of chastity with that of martyrdom. St. Austin observes, that her name signifies *chaste* in Greek, and a *lamb* in Latin. She has been always considered by the Catholics as a special patroness of purity, with the immaculate Mother of God and St. Thecla. Rome was the theatre of the triumph of St. Agnes; and Prudentius says, that her tomb was shown within sight of that city. She suffered not long after the beginning of the persecution of Dioclesian, whose bloody edicts appeared in March in the year of our Lord 303. She was only thirteen years of age at the time of her glorious death.

On the eve of St. Agnes's-day, many kinds of divination are practised by the rustic damsels in the north, to discover their future husbands.—See T. T. for 1815, p. 9, where are some further particulars of this saint.

#### \*21. 1814.—SAINT PIERRE DIED.

The well known author of the charming tale of Paul and Virginia, and the 'Studies of Nature,' a most fascinating work. The posthumous publication entitled 'Harmonies of Nature' has not added to his reputation; and some doubts have been suggested as to its genuineness.

#### 22.—SAINT VINCENT.

Vincent, a deacon of the church in Spain, suffered martyrdom in the Dioclesian persecution, about 303. A full description of the dreadful cruel-

ties which he suffered may be seen in T. T. for 1815, p. 12.

### 25.—CONVERSION OF SAINT PAUL.

Saint Paul suffered martyrdom under the general persecution of Nero. Being a Roman citizen, he could not be crucified by the Roman laws, as his colleague St. Peter was; he was, therefore, beheaded:—hence the usual representation of him with a sword in his hand. St. Chrysostom tells us that his picture was preserved by some of the christians in his time, and that he was but of a low stature (three cubits), that is, four feet six inches high. Nicephorus describes him as a small man, somewhat crooked, of a pale complexion, and appearing older than he really was.

Lord Lyttleton's 'Observations on the Conversion of St. Paul' deserve the most careful perusal of every scholar and every christian.

25.—SEXAGESIMA SUNDAY.—See SEPTUAGESIMA, p. 6.

### \*27. 1816.—LORD HOOD DIED, ET. 92.

His lordship was bred in the *old school*, like the Blakes, the Ansons, and the Hawkes of former times. To great bravery, he united great seamanship; he possessed, at the same time, a certain promptitude of decision, coupled with extraordinary coolness, skill, and judgment. These qualities justly entitled him to the confidence of the public, which he uniformly possessed; while all under his authority yielded a ready obedience to a commander who, when necessary, always appeared foremost in danger; but never risked either ships or men, except for the attainment of some great object, obviously calculated to redound to the advantage or to the glory of his country.—(*Annual Biography*, p. 379.)

### \*28. 1796.—FIRST TELEGRAPH IN ENGLAND.

### 30.—KING CHARLES I, MARTYR.

King Charles I was beheaded on this day. He was, says Clarendon, the worthiest gentleman, the

best master, the best friend, the best husband, the best father, and the best christian, that the age in which he lived produced. One of the most elegant and candid tributes paid to the memory of King Charles is the sermon of Bishop Horne, entitled *The Christian King*. The character of the king is too long to give entire, and it will not admit of an extract, but it is well worthy the reader's perusal on this day, or any day. The martyrdom of this king is thus simply recorded in a newspaper of the day, called the '*Moderate Intelligencer*.' It is here adduced as an instance of the shocking insensibility of the public mind to scenes of blood, when previously hardened by seditious writings and inflammatory speeches. 'On the 30th of January, was CHARLES, King of England, Scotland, France, and Ireland, put to death, by beheading, over against the Banqueting House at Whitehall.' This is printed with the same type as the common news of the day, and without any comment. For a further account of the character and manners of King Charles, we refer to T. T. for 1815, p. 16; some particulars of his trial will be found in p. 18 of the same volume, and in T. T. for 1816, p. 6. See also T. T. for 1814, p. 8, for a description of the finding of his body in St. George's Chapel, Windsor.

\*30. 1790.—THE LIFE-BOAT INVENTED.

## Astronomical Occurrences

In JANUARY 1818.

### *Obliquity of the Ecliptic.*

FROM the explanations we have already given, in the volumes of Time's Telescope for 1816 and 1817, relative to the *obliquity of the ecliptic* and its variations, the astronomical student will be prepared to understand the following table. It is therefore only necessary that we should, in this place, present the princi-

pal results for the present year, which are contained in the following

TABLE.

January	1st, the obliquity is	- -	23° 27' 54".3
March	1st, - - - - -	- -	23 27 55.4
May	1st, - - - - -	- -	23 27 55.4
July	1st, - - - - -	- -	23 27 55.1
September	1st, - - - - -	- -	23 27 56.1
November	1st, - - - - -	- -	23 27 56.2
December	31st, - - - - -	- -	23 27 55.6

The results in this table have been obtained by comparing the mean obliquity for 1813, as determined at the Royal Observatory, with the new mural circle, with those found by Dr. Bradley in 1756. The mean obliquity for 1813 was  $23^{\circ} 27' 50''$ ; and the mean diminution appears to be  $0''.4$ .

The Sun enters the sign Aquarius at 42 m. past 1 in the afternoon of the 20th of this month; and the following table shows the time of his rising and setting on every fifth day. The time for any intermediate day must be found by proportion, according to the method we have already explained in our former volumes.

TABLE

*Of the Rising and Setting of the Sun for every fifth Day.*

January 1, Sun rises	5 m. after 8.	Sets	55 m. after 3
6, - - -	1 - -	8 -	59 - - 3
11, - - -	57 - -	7 -	3 - - 4
16, - - -	52 - -	7 -	8 - - 4
21, - - -	45 - -	7 -	15 - - 4
26, - - -	37 - -	7 -	23 - - 4
31, - - -	29 - -	7 -	31 - - 4

### *Equation of Time.*

The following table shows what must be added to *apparent* time to obtain *mean* time on every fifth day of the present month, viz.

TABLE.

										m.	s.
Thursday, - -	1st,	to the time on the dial add	3	49							
Tuesday, - -	6th,	- - - - -	6	9							
Sunday, - - -	11th,	- - - - -	8	14							
Friday, - - -	16th,	- - - - -	10	6							
Wednesday, -	21st,	- - - - -	11	40							
Monday, - - -	26th,	- - - - -	12	54							
Saturday, - -	31st,	- - - - -	13	49							

*Phases of the Moon.*

New Moon,	6th,	at 36 m. past 11 night.
First Quarter,	14th,	44 - - 6 morning
Full Moon,	22d,	26 - - 10 morning
Last Quarter,	29th,	42 - - 4 afternoon.

*Moon's Passage over the first Meridian.*

The Moon will pass the first meridian, or that which passes through the Royal Observatory, on the following days during this month, at convenient times for observation. The time of her passage over any other meridian must be found from this by means of her horary motion.

January 1st, at 42 m. after 6 in the morning.

2d,	32	- - 7	- - - - -
3d,	26	- - 8	- - - - -
13th,	26	- - 5	in the evening.
14th,	6	- - 6	- - - - -
15th,	48	- - 6	- - - - -
16th,	31	- - 7	- - - - -
17th,	17	- - 8	- - - - -
18th,	5	- - 9	- - - - -
19th,	57	- - 9	- - - - -
20th,	40	- - 10	- - - - -

*Eclipses of Jupiter's Satellites.*

There will be only two eclipses of Jupiter's first satellite visible at the Royal Observatory this month, and one of his second satellite, viz.

## IMMERSIONS.

1st Satellite,	17th day,	at 47 m. after 6 in the morning.
- - - - -	26th	- - 9 - - 3 - - - -
2d Satellite,	19th	- - 17½ - - 5 - - - -

*Other Phenomena.*

Mercury will attain his greatest elongation on the 7th of January ; and be in his inferior conjunction at a quarter before 11 on the night of the 23d. On the 3d, Jupiter and Venus will be in contact. On the 14th, both Mercury and Mars will be stationary ; and at 1 m. after 5 in the afternoon of the 2d, and 15 m. past 11 at night on the 29th, the Moon will be in conjunction with the star  $\alpha$  in Libra.

*On the TRANSITS of VENUS.*

We have already treated of this queen of the planets, and given her general elements in the first and second volumes of *Time's Telescope*, in the latter of which we stated what was to be understood by her *transits*, and promised an explanation of the subject in a subsequent volume of our labours. The subjects of which we have since treated, and especially those discussed in the volume for last year, have now prepared our readers for more easily comprehending this ; and we shall therefore avail ourselves of this facility to redeem our pledge with effect.

These Transits are not merely objects of curiosity, but of great utility. Their rare occurrence, indeed, renders them extremely interesting to the astronomer ; but this interest is greatly increased when he reflects that it is by this means alone that the important problem relative to the real distance of the Sun from the Earth can be ascertained with any degree of certainty ; that they can be applied with great effect in ascertaining the longitude of places ; and that they are of great use in correcting the elements of the planets, especially the places of the aphelia, the situations of the nodes, and the inclinations of the orbits. The transits of Venus, in 1761 and 1769, contributed much to the correctness of our knowledge of her movements ; and the transits of Mercury are also capable of being applied to the same purpose. Relative to that of 1799, *Lalande*, in his *History of Astronomy* for 1800, observes,

‘The transit of Mercury over the Sun enabled me to verify the place of the aphelion, and by the result there appears to be no necessity to change the tables of this planet.’ The transits of Mercury take place much oftener than those of Venus; but on account of his greater distance from the Earth, and the smallness of his parallax from the Sun, they are not susceptible of equal utility with those of Venus.

In viewing the progress of human knowledge, and especially in tracing the steps by which the noble science of astronomy has attained its present advancement, the scientific mind not only acquires fresh strength, but derives peculiar elevation from frequently contemplating the exertions of genius, and witnessing the industry and ardour with which she overcomes difficulties, insurmountable to all but genius herself. Nothing is perhaps more animating to the youthful student than frequently reflecting on the old maxim,—*whatever man has done, man may do*—and the sensible mind can scarcely recollect that the vast magnitude of the Earth has now become the subject of actual measurement; that all the stars that are visible to the naked eye have been accurately numbered; and that even the immense distance of the Sun can now be submitted to a rigorous calculation, without deriving fresh courage from the recollection, and feeling itself reanimated in the pursuit of truth. The two transits of Venus, above referred to, have enabled astronomers to resolve this problem with an accuracy which those of former ages durst not even *hope* to attain. The person who first suggested this excellent method of solution was Dr. *Edmund Halley*, whose mathematical and philosophical labours will justly entitle him to the veneration of posterity, at a period when many whose ambition has either inflamed the passions or deepened the miseries of man will have sunk into everlasting oblivion. A few extracts from the Dissertation on this subject, which he presented

to the Royal Society, of which he was a distinguished member, will afford the reader the best information on the manner in which he was led to it, and the clearest views of the impression it made on his mind at the time of the discovery. He observes,

‘ There are many things that appear extremely paradoxical, and even quite incredible to the illiterate, which yet, by means of mathematical principles, are easily solved. Scarcely any thing will be thought more hard and difficult than that of determining the distance of the Sun from the Earth; but this, when we are made acquainted with some exact observations, taken at places fixed upon, and chosen beforehand, for that purpose, may, without much labour, be easily effected. And this is what I am more desirous to lay before this illustrious Society, that I may explain to young astronomers, who may perhaps live to observe these things, the method by which the immense distance of the Sun from the Earth may be truly determined, to within at least a five hundredth part of what it really is.’

Dr. Halley then states the opinions of various astronomers relative to this distance, with his own reasons for doubting their conclusions, and then says,

‘ About forty years ago, when I was in the Island of St. Helena, taking a catalogue of the stars near the south pole, I had an opportunity of observing the passage of Mercury over the Sun’s disc, which succeeded better than I could have expected; for, by means of a telescope twenty-four feet long, I determined the very moment when Mercury, entering upon the Sun, seemed to touch his inward limb; and also when, in going off, it struck the limb of the Sun’s disc, forming the angle of interior contact; by which means I found the interval of time during which Mercury appeared upon the Sun, even without an error of a single second.

‘ For the lucid line, intercepted between the dark limb of the planet and the bright limb of the Sun,



although exceedingly fine, may be easily seen by the eye ; and the small dent made in the Sun's limb, by Mercury's entering or leaving the disc, appears, in the first case, to vanish, and, in the latter, to begin almost instantaneously. When I perceived this, it came immediately into my mind, that the Sun's parallax might be accurately determined by such kind of observations as these, provided Mercury were nearer the Earth, and had a greater parallax from the Sun. But the difference of these parallaxes is always less than the solar parallax which we seek ; and therefore Mercury, though he may frequently be seen, apparently on the Sun, is not to be regarded as fit for our purpose.

‘ There remains then the transit of Venus over the Sun's disc, whose parallax, being almost four times as great as the solar parallax, will cause very sensible differences between the times in which Venus will seem to be passing over the Sun from different parts of the Earth. And from these differences, if they be properly observed, the Sun's parallax may be determined, even to a small part of a second. Nor are any other instruments required for this purpose, than common telescopes, and clocks, which are good of their kind ; and in the observers, nothing more is necessary than fidelity, diligence, and a moderate skill in astronomy.

‘ For there is no need that the latitude of the place should be scrupulously observed, nor that the time itself should be accurately determined with respect to the meridian : it is sufficient that the clocks be regulated according to the motion of the heavens, provided the times be accurately reckoned from the total ingress of Venus into the Sun's disc, to the beginning of her egress from it ; that is, when the dark globe of Venus first begins to touch the bright limb of the Sun within ; which moments I know, by my own experience, may be observed to within a second of time.

‘ But, on account of the very strict laws by which the motions of the planets are regulated, Venus is seldom to be seen within the Sun’s disc; and during the course of one hundred and twenty years it could never be once observed; namely, from the year 1639 (when this most pleasing sight happened to that excellent youth Horrox, our countryman, and to him only since the creation) to the year 1761; in which year, according to the theories that have been hitherto found agreeable to the celestial motions, Venus will again pass over the Sun on the 26th of May (old style) in the morning; so that at London, about six o’clock in the morning, we may expect to see her near the middle of the Sun’s disc, and not above four minutes of a degree south of his centre.

‘ The whole duration of this transit will be almost eight hours; namely, from two o’clock in the morning to a little before ten, and therefore the ingress will not be visible in England; but as the Sun will, at that time, be in the 16th degree of Gemini, having nearly twenty-three degrees of north declination, it will be seen without setting in almost every part of the northern frigid zone.’

The doctor then specifies the places where Venus might be seen to enter the Sun’s disc, and observes, that the mouth of the Ganges would be a favourable place for the observation; as the Sun would be nearly four hours to the east when the planet entered his disc, and as many towards the west when it leaves it; and adds, ‘ the apparent motion of Venus over the solar disc will be accelerated by almost double the horizontal parallax of Venus from the Sun; because Venus, at that time, is carried with a retrograde motion from east to west, while a spectator, placed upon the Earth’s surface, is turned the contrary way, from west to east.

‘ Supposing, therefore, the Sun’s parallax to be twelve seconds and a half, as I have before conjectured, the parallax of Venus will be forty-three se-

conds ; from which, if the former be subtracted, there will remain thirty seconds and a half for the horizontal parallax of Venus from the Sun : and, therefore, at those places which lie near the tropic, the motion of Venus will be increased by that parallax forty-five seconds at least, whilst she passes over the Sun's disc ; and still more so at places which are situated in the neighbourhood of the equator. Now Venus, at that time, will move on the Sun's disc very nearly at the rate of four minutes of a degree in an hour, and therefore eleven minutes of time, at least, are to be allowed for the forty-five seconds of a degree abovementioned ; which, therefore, is the space of time the duration of the eclipse, caused by Venus, will, on account of the parallax, be shortened.'

In a question of this moment, however, the doctor does not conceive it advisable to depend solely upon one place of observation for the result, and therefore fixes upon Port Nelson, on the shores of Hudson's Bay, as another convenient station for the purpose ; because there 'the parallax of Venus will increase the duration of the transit by at least six minutes of time ; for whilst the Sun from his setting to his rising seems to pass under the pole, those places on the Earth's surface will be carried from east to west, or with a motion conspiring with that of Venus ; and therefore she will seem to move more slowly on the Sun, and be longer in passing over his disc. If therefore it happens that this transit should be properly observed, by skilful persons, at both these places, it is clear that the duration of it will be seventeen minutes longer as seen from Port Nelson, than as seen from the East Indies.'

Dr. H. points out Madras, Bencoolen, Pondicherry, and Batavia, as proper places for making the requisite observations, of an occurrence which none of the inhabitants then living could expect to see more than another time ; and evinces his earnestness by adding,

‘ I recommend it therefore, again and again, to those curious astronomers who may have an opportunity of observing these things when I am dead, that they would remember these admonitions, and diligently apply themselves with all their might to the making of the necessary observations ; in which I earnestly wish them all imaginable success : in the first place, that they may not, by the unseasonableness of a clouded sky, be deprived of this most desirable sight ; and then, that having ascertained with more exactness the magnitudes of the planetary orbits, it may redound to their immortal fame and glory.’

This excellent astronomer then concludes this part of his Dissertation, by observing, ‘ Since seventeen minutes of time answer to twelve seconds and a half of solar parallax, for every second of parallax there will arise a difference of more than eighty seconds of time ; so that if we have this difference true to two seconds, it will be certain what the Sun’s parallax is, to within a fortieth part of a second ; and therefore his distance will be determined to within a five hundredth part at least, if the parallax be not found less than we have supposed ; for forty times twelve and a half is five hundred.’

[To be continued.]

## The Naturalist’s Diary

For JANUARY 1818.

Pale rugged winter, bending o’er his tread,  
His grizzled hair, bedropt with icy dew ;  
His eyes, a dusky light, congealed and dead ;  
His robe, a tinge of bright ethereal blue :  
His train, a motleyed, sanguine, sable cloud,  
He limps along the russet, dreary moor ;  
While rising whirlwinds, blasting, keen, and loud,  
Roll the white surges to the sounding shore.

WINTER now unfolds his awful train, ‘ vapours, clouds and storms ;’ and all nature appears but one

dreary waste : yet cold and gloomy as this season usually is, it offers to the grateful mind many an interesting subject of contemplation. Among these, may be mentioned the effects of the *hoar-frost*, or of the dew or mist frozen. This adheres to every object on which it falls, and produces figures of incomparable beauty and elegance. Every twig and blade of grass is beset by it with innumerable glittering pearly drops, or silver plumage. These appearances are still more striking, the farther we proceed to the north. It sometimes happens, that a sudden shower of rain falls during a frost, and immediately turns to ice, a circumstance which has been described in some beautiful lines, in our volume for 1815, p. 73.

But winter, in our temperate regions, exhibits very few phenomena, in comparison with what is visible in the arctic circle. Thomson, therefore, has judiciously enriched his noble conclusion of the Seasons with all the circumstances of picturesque beauty, or terrific grandeur, that could be borrowed from scenes far remote from us. The famished troops of wolves pouring from the Alps ; the mountains of snow rolling down the precipices of the same countries ; the dreary plains over which the Laplander urges his reindeer ; the wonders of the icy sea ; and volcanoes flaming through a waste of snow ; are objects selected, with the greatest propriety, from all that nature presents most singular and striking in the various domains of boreal cold and desolation ; where

Winter, armed with terrors *here* unknown,  
Sits absolute on his unshaken throne ;  
Piles up his stores amid the frozen waste,  
And bids the mountains he has built, stand fast ;  
Beckons the legions of his storms away  
From happier scenes to make the land a prey ;  
Proclaims the soil a conquest he has won,  
And scorns to share it with the distant sun.

COWPER.

The most intense cold in England is usually felt in the month of January ; and the weather is either

bright with frost, or foggy with much *snow*<sup>1</sup>. Of this phenomenon, and its important services to vegetation, we have already spoken at large in our former volumes. A shower of snow is well described by Homer, in the following lines, as translated by Pope :—

In Winter's bleak uncomfortable reign  
 A snowy inundation hides the plain;  
 Jove stills the winds, and bids the skies to sleep;  
 Then pours the silent tempest thick and deep:  
 And first the mountain tops are covered o'er,  
 Then the green fields, and then the sandy shore;  
 Bent with the weight the nodding woods are seen,  
 And one bright waste hides all the works of men:  
 The circling seas alone, absorbing all,  
 Drink the dissolving fleeces as they fall.

The inclemency of the season now compels the numerous tribes of birds to quit their retreats in search of food. The redbreast (*sylvia rubecula*), the only bird that confides in man, begins to sing. Of the docility of the robin we have a pleasing instance given by Miss Charlotte Smith. 'Two years ago,' says she, 'towards the close of the month of August, a robin frequented the drawing-room at B., and became in the course of the winter so tame, that as soon as the windows were open in the morning he used to come in, and seemed to consider it as his domicile, though he always roosted among the shrubs near the window. On being called, he readily made his ap-

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<sup>1</sup> But this is not always the case. As a proof of the occasional mildness of the season, the following plants were observed in blossom upon the 30th January 1817, in a garden in the neighbourhood of Glasgow: wall-flower, stock, primrose, cowslip, polyanthus, daisy, hepatica, crocus, christmas-rose, green hellebore, winter aconite, white coltsfoot, whitlow grass, scurvygrass, golden saxifrage, and early flowering heath; besides which many gooseberry bushes, currants, roses, honeysuckles, and even some plants of hawthorn, had already unfolded their leaves. A butterfly was seen in Carlisle, about the 20th, on the wing, in a very healthy condition. There were also two pear-trees, in a garden, in full blossom.

pearance, and used to sit and sing at the back of a chair, or on the piano forte. He was a constant attendant at the breakfast table, and expected to be fed like a domestic animal; for when we went out for a few days, he resorted to the offices, and followed the servants into the larder. My pretty robin, however, was a very Turk in disposition, and would suffer no brother near the throne; for he drove away, with every mark of resentment, any of his compatriots, who during the hard weather showed any inclination to share the advantages he had appropriated to himself; of which indeed he seemed to feel all the value, for, as winter advanced, he became so familiar as to sit and sing on my daughter's shoulder, and appeared to have totally lost all the apprehensions of a wild bird. If he chose to go out, instead of beating himself against the window, he sat on the edge of the frame till it was opened for him; or, taking an opportunity when the door was open, he flew through the greenhouse or through the passages, till he found his way out. He was a great favourite as well in the kitchen, as in the parlour: and it was with general regret, that early in the spring he was missed, and never returned. Had he retired to build, as robins are said to do, in woods and copses, he would not have gone far from the house, around which there were so many thickets and shrubs, and where it is probable he was bred. It is therefore most likely, that, being so tame and fearless, he was destroyed by a cat.\*

From snowy plains, and icy sprays,  
From moonless nights, and sunless days,  
Welcome, poor bird! I'll cherish thee;  
I love thee, for thou trustest me.  
Thrice welcome, helpless, panting guest!  
Fondly I'll warm thee in my breast:—  
How quick thy little heart is beating!  
As if its brother flutterer greeting.

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\* Conversations on Natural Hist., vol. i, p. 165, where will be found the well-known little poem called 'The Robin's Petition.'

Thou need'st not dread a captive's doom;  
 No! freely flutter round my room;  
 Perch on my lute's remaining string,  
 And sweetly of sweet summer sing.  
 That note, that summer note, I know;  
 It wakes, at once, and soothes my woe,—  
 I see those woods, I see that stream,  
 I see,—ah, still prolong the dream!  
 Still, with thy song, those scenes renew,  
 Though through my tears they reach my view.

GRAHAM.

About the beginning of the month, larks (*alauda arvensis*) congregate, and fly to the warm stubble for shelter; and the nut-hatch (*sitta europæa*) is heard. The shell-less snail or slug (*limax*) makes its appearance, and commences its depredations on garden plants and green wheat. The missel-thrush (*turdus viscivorus*) begins its song. The hedge-sparrow (*sylvia modularis*), and the thrush (*turdus musicus*), begin to sing. The wren, also, 'pipes her perennial lay,' even among the flakes of snow. The titmouse (*parus*) pulls straw out of the thatch, in search of insects; linnets (*fringilla linota*) congregate; and rooks (*corvus frugilegus*) resort to their nest-trees. Pullets begin to lay; young lambs are dropped now.

The house-sparrow (*fringilla domestica*) chirps; the bat (*vespertilio*) appears; spiders shoot out their webs; and the blackbird (*turdus merula*) whistles. The fieldfares, red-wings, skylarks, and titlarks, resort to watered meadows for food, and are, in part, supported by the gnats which are on the snow, near the water. The tops of tender turnips and ivy-berries afford food for the graminivorous birds, as the ringdove, &c. Earth-worms lie out on the ground, and the shell-snail (*helix memoralis*) appears.

#### The SNAIL.

[From the French of M. Arnault.]

With friends, with family unblest,  
 Condemned alone to dwell;  
 If danger's least alarm molest,  
 He shrinks within his cell.



Sole tenant of his narrow walls ;  
 His self esteem profound ;  
 He issues when the season calls  
 To join the insects round.

Impure his track, he winds his way  
 Among the shrubs and flowers ;  
 The fairest his selected prey,  
 He taints them or devours.

Grown old, like captive moped and wan,  
 Forlorn at home he lies :  
 Thus snail-like lives the *selfish man*,  
 And like a snail he dies.

The chaffinch (*fringilla cœlebs*) sings ; jackdaws repair to the tops of churches ; and the grey and white wagtail (*motacilla*, *boarula* & *alba*) appear. Snipes, woodcocks, herons, wild-ducks, and other water-fowl, retire from the frozen marshes to streams that are still open ; and, as the cold strengthens, sea-birds come up the river in quest of food.

The farmer exerts all his care in tending the domestic cattle. Cows can scarcely pick out any grass, and depend chiefly on hay for support ; early lambs and calves are housed, and watched with almost paternal solicitude. Hares, impelled by hunger, find their way into our gardens, to browse on the cultivated vegetables ; and rabbits enter plantations, and commit great havoc by stripping trees of their bark. The sharp-eyed fox steals from the wood, and makes his incursions into the hen-roost and farmyard. The weasel and polecat also continue their depredations. The cold-blooded animals, as the frog, snake, and lizard, are quite benumbed by the cold, and so remain till the approach of warm weather. The dormouse, marmot, &c. take their winter sleep ; while the squirrel and the field-mouse subsist, in their retreat, upon the provision which they have laid up during the autumn.

The colt eating his winter repast is prettily delineated by Mr. Hurdis :—

In thick and horrent coat, no longer sleek,  
 With heels unclipped, and shaggy mane promiss,

In his lone corner stands the leering colt,  
 At leisure relishing his scanty meal  
 Of thin up-shaken forage. To the cow,  
 That with a wishful look his feast surveys  
 At fearful distance fixed, from his white eye  
 Reversed, he flashes indignation strong  
 And peremptory menace, crouching close,  
 And trampling loose on his vindictive heel,  
 With sullen laid down ear.

In this month, the flowers of the rosemary (*rosmarinus officinalis*) begin to open; the winter aconite (*helleborus hiemalis*), and the bear's foot (*h. fœtidus*), are in flower about the middle of the month; the mezerion (*daphne m.*) 'breathes mild its early sweets;' and the red dead-nettle (*lamium purpureum*) flowers under the shelter of southern hedges. The snowdrop (*galanthus nivalis*) seems on the point of blowing.

Like pendant flakes of vegetating snow,  
 The early herald of the infant year,  
 Ere yet th' advent'rous crocus dares to blow  
 Beneath the orchard boughs, thy buds appear.  
 While still the cold north-east ungenial lowers,  
 And scarce the hazel in the leafless copse,  
 Or *sallows* show their downy powdered flowers,  
 The grass is spangled with thy silver drops.

C. SMITH.

The common creeping crowfoot (*ranunculus repens*) is now in flower; and the crocus, if the weather be mild, appears above ground. Ivy casts its leaves; the catkin, or male blossom of the hazel (*corylus avellana*), unfolds; the flowers of the holly (*ilex aquifolium*) begin to open; and the leaves of the honey-suckle (*lonicera periclymenum*) are quite out. Towards the end of January, the daisy (*bellis perennis*) is in full bloom. Of this universal favourite we have given many poetical eulogies in our former volumes; we may still say of it, with Mr. Montgomery,

'Tis Flora's Page :—in every place,  
 In every season fresh and fair,  
 It opens, with perennial grace,  
 And blossoms everywhere.

On waste and woodland, rock and plain,  
 Its humble buds unheeded rise ;  
 The rose has but a summer reign ;  
 The daisy never dies.

The china rose (*rosa chinensis* and *rosa semperflorens*), till lately unknown to us, and at first considered only as a greenhouse plant, is now seen in blow in the open air, even in the month of December, often with its red buds mossed with frost. The wallflower (*cheiranthus*), periwinkle (*vinca, major & minor*), and heart's-ease (*viola tricolor*), are still in blow.

The golden saxifrage, called also golden moss, and stonecrop (*chrysosplenium*), in the absence of other flowers, affords its little aid to give life and beauty to the garden. The bramble (*rubus fruticosus*) still retains its leaves, and gives a thin scattering of green in the otherwise leafless hedges ; while the berries of the hawthorn, the wild rose, and the spindle-tree, afford their brilliant touches of red. The twigs of the red dogwood, too, give a richness amid the general brown of the other shrubs.

In this month, the farmer carries out manure to his fields, and repairs quickset hedges ; taking advantage of the dry and hard ground, during frost. The barn resounds with the flail, barley being now threshed for malting. He lops forest-trees, and cuts timber for winter use. About the end of the month, in dry weather, peas and beans are sown, and vetches for seed or fodder. Hogs are killed for bacon, and beef and hams are smoked.

Hunting and shooting are among the favourite amusements of this season. Skating, also, is much practised by young persons.

We shall close the present Diary with the following poetical 'Calendar of the Months :

See January first appear,  
 Best kept at home with plentiful cheer :  
 In February's faint essay,  
 We gladly mark the lengthened day :

Bleak March's keener winds succeed,  
 Rough as the newly-mounted steed :  
 April a flattering face will wear,  
 Resembling a coquettish fair :  
 E'en May is often proved a bite,  
 Warms in the day, but chills at night.  
 Bright June, in gayest liv'ry dressed,  
 Of Flora's glory is the test :  
 July presides in Phœbus' smiles,  
 Whose evening human care beguiles :  
 Brown August sober pleasure brings,  
 Maturing heat upon his wings :  
 September offers to our reach  
 The clustered grape and blushing peach :  
 October's waning influence yields  
 The sportsman pleasure in the fields :  
 November's soaking show'rs require  
 The changed coat and blazing fire :  
 And dark December, in the end,  
 Commends a book and cheerful friend\*.

## FEBRUARY.

SOME etymologists derive February from *Februa*, an epithet given to Juno, as the goddess of purification ; while others attribute the origin of the name to *Februa*, a feast held by the Romans in this month, in behalf of the manes of the deceased. The Saxons named February, *sprout-kele*, on account of the sprouts of the cole-wort which began to appear in this month.

## Remarkable Days

In FEBRUARY 1818.

1.—QUINQUAGESIMA SUNDAY.—See SEPTUAGESIMA, p. 6.

\*1. 1805.—ABERGAVENNY EAST-INDIAMAN LOST.

The Abergavenny sailed from Portsmouth on this day with a cargo worth £200,000, and stood down

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\* See Transmigration, a Poem, &c. p. 35.

the channel with a fair wind ; but the weather changing, a signal was made for the ships to steer for Portland Road. The pilot, either from ignorance or intoxication, ran this ill-fated ship on shore, about four in the afternoon, upon a well known reef, not far from Weymouth ; on which she lay beating for several hours, while every effort was made, but in vain, to get her off. Till eight at night she continued making more water than all the pumps could clear, aided by every other exertion, and the united endeavours of 400 people, whose situation, as the night advanced, became every moment more dreadful and alarming. Signal guns of distress were fired for assistance, in the hope of getting boats to save the crew, passengers, King's and Company's troops. At ten, while all were anxiously looking towards the shore, it was found the water had reached the top deck, and no expectation remained of saving the ship. In this afflictive moment of horror and despair, she suddenly swung off the shoal into deep water ; and the chief mate observing her going down, called aloud to the captain, a man remarkable for temper and fortitude, that it was impossible to save her. He instantly replied, ' It cannot be helped : God's will be done ! ' In a few moments she was buried in the remorseless waves, which swept into eternity 263 human beings, who had scarcely time to call for mercy. The highest part of the hull was 30 feet under water ; and of 130 saved out of 402, nearly the whole got upon the topmast rigging, and were taken up by boats from the land. —(*Buck's Practical Expositor*, p. 32.)

## 2.—PURIFICATION OF THE BLESSED VIRGIN MARY.

This festival is of high antiquity, and the antient Christians observed it by using a great number of lights ; in remembrance, as it is supposed, of our blessed Saviour's being declared by *Simeon* to be a light to lighten the Gentiles ; hence the name of Candlemas Day. The Greeks call this festival Hy-

pante, which signifies the *meeting*, because Simeon and Anna met our Lord in the Temple on this day. The candles carried about on this day were *blessed* by the priests. It is called 'Christ's Presentation,' 'the holiday of Saint Simeon,' and, in the north of England, the 'Wives' Feast Day.'—See T. T. for 1814, p. 28, and T. T. for 1815, p. 43.

### 3.—SAINT BLASE.

He was bishop of Sebaste in Armenia, and suffered martyrdom in 316, under the persecution of Licinius, by command of Agricolaus, governor of Cappadocia and the Lesser Armenia. His festival is kept a holiday in the Greek church on the 11th of February. In the holy wars his relics were dispersed over the West, and his veneration was propagated by many miraculous cures, especially of sore throats. He is the principal patron of the commonwealth of Ragusa. No other reason than the great devotion of the people to this celebrated martyr of the church, seems to have given occasion to the woolcombers to choose him the titular patron of their profession; and his festival is still kept by them at Norwich, and also at Doncaster, with a solemn guild. Perhaps the iron combs, with which he is said to have been tormented, gave rise to this choice.

The different trades on the Continent celebrate their anniversaries with considerable pomp and ceremony. At Montpellier (according to a recent traveller<sup>1</sup>) the stocking-weavers, coopers, gardeners, and other companies, have each their festive day once in the year. Even the *porters* have such an honorary day, on which they are accustomed to go through the awkward movements peculiar to their guild before the houses of their customers. The *stocking weavers* carry on a stage, adorned with flowers and ribands, a wooden weaver's chair, on which a boy appears to be working. The gardeners have a tub with a pole in it, from whence,

<sup>1</sup> See Mr. Coxe's Guide through France, p. 265.

instead of branches, hang a number of flower-garlands. The coopers carry half-hoops, which are also decorated with ribands and wreaths. All learn very pretty dances, and make masterly turns with their ringlets of flowers or hoops, and disengage themselves again with amazing dexterity and order. The vanity of these people manifests itself on these solemnities under the most varied forms, and occasions a number of ridiculous scenes. Poverty allows only a few of them to put on decent clothing: but with the indigence and dirt that are evident from their dress, they all wear white silk stockings, which are quite covered with feathers of all colours, and a threadbare scarf from the wardrobe of the theatre, and some other showy tatters from the rag-shop. The females are commonly worse dressed, and yet have fashionable ladies' hats, which they mostly borrow or beg from the houses where they serve milk or vegetables. These head-dresses form a singular contrast with the brown and coarse faces which they shade. Many a girl appears also, for want of a female head-dress, in a man's hat, on which is stuck a number of shabby feathers. The porters also adorn their hats on these days with ostrich-feathers, and bind a scarf with gold or silver tassels round their bodies.

The favourite dress is that of an officer. In all their processions there are some who prance about in a soldier's coat, with a stick, sword, and epaulets; all hired from the theatre. The gold epaulet has above all things so many charms for them, that many a one attaches it to his dirty clothes, who has not the money to pay for its hire. An indispensable article in all these festivals is the flags, of which there are a great number of various colours, decorated with inscriptions and paintings. Twelve porters have as many different colours, of which some, to judge by the dirt, might have already served their great-grandfathers.

### 3.—SHROVE TUESDAY.

This day is also called 'Fastern's Een' and Pancake

Tuesday. *Shrove* is the preterite of *shrive*, an antiquated word, which signifies to hear or make confession. On this day it was usual for the people to *confess*, that they might be the better prepared for the observation of the ensuing season of penitence, and for receiving the sacrament at Easter. It was afterwards converted into a day of idle sports and amusements; and within these few years, in many parts of England, its anniversary was distinguished by riot and drunkenness, by bull-baiting, cock-fighting, and such other diversions as were calculated to promote cruelty, inhumanity, and every thing the most opposite to the virtues which it was the intention of the church to teach and encourage. These barbarous customs, we fear, are not now wholly abolished.—See T. T. for 1814, p. 35, and for 1815, p. 45.

The custom of frying *pancakes* on this day is still retained in many families throughout the kingdom, but we think the practice not likely to last another century. In the *north*, the Monday preceding Shrove Tuesday is called *Collop Monday*; eggs and collops (slices of bacon) composing an usual dish at dinner on this day.

The Popish Carnival commences from Twelfth-day, and usually holds till Lent. At Rome, the Carnival lasts for nine days, and it is no where seen in such perfection as at this place.—See it described at length in our volume for 1815, p. 48.

#### 4.—ASH WEDNESDAY.

Formerly Lent began on the Sunday after *Quinquagesima*, i. e. our first Sunday in Lent, and ended at Easter, containing in all 42 days; and subtracting the six Sundays which are not fasts, there remained only 36 fasting-days, the tenth part of 360, the number of days in the antient year, then considered as a tythe of the year consecrated to God's service. To these 36 fasting-days, however, of the *Old-Lent*, Gregory added four days more, to render it equal to the time of our Saviour's fasting, causing it to begin on *Ash Wednes-*



day, three days after *Quinquagesima*; and thus it has remained ever since. Lent is not of apostolic institution, nor was it known in the earlier ages of the Christian church. For some remarkable fasts, and directions for 'keeping the true Lent, see T. T. for 1814, p. 39.

\*4. 1732.—DR. ARMSTRONG DIED.

The reputation of Armstrong as a poet is almost solely founded on his 'Art of preserving Health,' which may well be ranked among the first didactic poems in the English language. He was much beloved and respected by his intimates, and seems to have possessed great goodness of heart, as well as extensive knowledge and abilities; but a kind of morbid sensibility preyed on his temper, and a languid listlessness damped his intellectual efforts. The following lines in Thomson's 'Castle of Indolence' are said to have been meant for his portraiture:—

With him was sometimes joined in silent walk  
(Profoundly silent—for they never spoke)  
One shyer still, who quite detested talk;  
Oft stung by spleen, at once away he broke  
To groves of pine, and broad o'ershadowing oak;  
There, inly thrilled, he wandered all alone,  
And on himself his pensive fury wroke:  
He never uttered word, save when first shone  
The glittering star of eve—'Thank heav'n! the day is done.'

It should not be forgotten that Armstrong contributed to this excellent poem, the fine stanzas descriptive of the diseases to which the votaries of indolence finally become martyrs.

5.—SAINT AGATHA.

'The cities of Palermo and Catana dispute the honour of her birth; but they do much better, who, by copying her virtues, strive to become her fellow-citizens in heaven.' (*Butler*.)—She suffered martyrdom under Decius in the year 251.

\*6. 1804.—DR. PRIESTLEY DIED.

The mental qualities of this great man were less suited to the laborious investigation of what is termed

erudition, than to the argumentative deductions of metaphysics, and the experimental researches of natural philosophy. Assiduous study had, however, given him a familiarity with the learned languages sufficient in general to render the sense of authors clear to him, and he aimed at nothing more. In his own language he was contented with facility and perspicuity of expression, in which he remarkably excelled. But it is as a *chemical philosopher* that he stands highest, in the capacity of an inventor or discoverer, and it is in this character that his name will, probably, be chiefly known to posterity.

Dr. Priestley was a man of perfect simplicity of character. In integrity and disinterestedness, in the strict performance of every social duty, no one could surpass him. His temper was easy and cheerful, his affections were kind, his dispositions friendly. Such was the gentleness and sweetness of his manners in social intercourse, that some, who had entertained the strongest prejudices against him on account of his opinions, were converted into friends on a personal acquaintance.

#### 11.—EMBER WEEK.

The Ember days are the Wednesday, Friday, and Saturday after the first Sunday in Lent, and after the 13th of December. It is enjoined by a canon of the church, 'that Deacons and Ministers be ordained, or made, but only on the Sundays immediately following these Ember feasts.'—(*Nelson.*)

#### \*13. 1691.—MASSACRE OF GLENCOE.

#### 14.—SAINT VALENTINE.

Valentine was an antient presbyter of the church: he suffered martyrdom in the persecution under Claudius II, at Rome. Being delivered into the custody of a man named Asterius, one of whose daughters was afflicted with blindness, he restored the use of her sight, and, by this miracle, converted the whole family to Christianity. They afterwards suffered martyrdom.

Valentine, after a year's imprisonment at Rome, was beaten with clubs, and then beheaded, in the *Via Flaminia*, about the year 270.

The custom of choosing Valentines and of sending love-letters on this day, is discussed at length in our volume for 1814, p. 32.

The first inventor of this custom (observes Mr. Hutchinson) must have been some benevolent female, who studied to encourage the intercourse of the sexes ; for by such means intimacies might arise, productive of love and marriage engagements : or otherwise the first design of these lots was, that those who shared in the dances, and diversions, might have their proper partners assigned, without hazarding the confusion and displeasure which must necessarily arise in the liberty of choice.—See T. T. for 1814, p. 33, *note*, for an elegant *jeu d'esprit* on this subject ; T. T. for 1815, p. 52 ; and our last volume, p. 40.

**\*14. 1779.—CAPT. COOK MURDERED AT OWHYHEE.**

When Cook—lamented, and with tears as just  
As ever mingled with heroic dust—  
Steered Britain's oak into a world unknown,  
And in his country's glory sought his own ;  
Whenever he found man, to nature true,  
The rights of man were sacred in his view.  
He soothed with gifts, and greeted with a smile,  
The simple native of the new-found isle ;  
He spurned the wretch that slighted or withstood  
The tender argument of kindred blood ;  
Nor would endure that any should control  
His free-born brethren of the southern pole.

**\*17. 1563.—MICHEL ANGELO DIED, *Æt.* 88.**

He was equally celebrated as a sculptor, painter, and architect ; having superintended the building of St. Peter's Church, at Rome, for more than seventeen years. Few men have passed through life with more honour and esteem than Michel Angelo, whom popes and princes looked up to as one of the wonders of the age. This eminence he obtained by indefatigable application, and the steady pursuit of perfection. Hi-

gorously sober, and inclined to solitude, nothing interfered with his studies and labours. He lived in a state of celibacy; and was accustomed to say that his art was his wife, and his works his children who would perpetuate his memory.

\*21. 1797.—REV. JOHN PARKHURST DIED.

His valuable Greek and Hebrew Lexicons will ever cause his name to be revered by the learned and the pious.

#### 24.—SAINT MATTHIAS.

Matthias was, probably, one of the seventy disciples, and was a constant attendant upon our Lord, from the time of his baptism by St. John until his ascension. Upon the death of Judas, St. Peter recommended to the consideration of the Christians assembled at Jerusalem the necessity of supplying this vacancy: and two were appointed; Joseph, called Barsabas, who was surnamed *Justus*, and Matthias. It was determined by lot in favour of the latter, who was accordingly numbered with the eleven apostles. Matthias employed the first years of his ministry in Judea; afterwards he travelled eastward, his residence being principally, according to St. Jerome, near the river Apsarus, and the haven Hyssus. Here he continued for some time, but was at last murdered by the barbarous natives. The gospel and traditions published under his name are considered spurious.

## Astronomical Occurrences

IN FEBRUARY 1818.

THE Sun enters Pisces at 26 m. after 4 in the morning of the 19th, and he rises and sets during this month as stated in the following

#### TABLE

*Of the Sun's Rising and Setting for every Fifth Day.*

February 1st,	Sun rises 27 m. after 7.	Sets 33 m. after 4
6th,	- - 18 - - 7.	- 42 - - 4
11th,	- - 9 - - 7.	- 51 - - 4
16th,	- - 0 - - 7.	- 0 - - 5
21st,	- - 51 - - 6.	- 9 - - 5
26th,	- - 41 - - 6.	- 19 - - 5

*Equation of Time.*

The following table shows what must be added to the time, as indicated by a good sun-dial, to obtain the mean time corresponding to the same instant on every fifth day of the month, viz.

TABLE.

	m.	s.
Sunday, Feb. 1st, to the time by the dial add	13	57
Friday, - 6th, - - - - -	14	28
Wednesday, 11th, - - - - -	14	38
Monday, - 16th, - - - - -	14	28
Saturday, - 21st, - - - - -	14	0
Thursday, 26th, - - - - -	13	16

*Phases of the Moon.*

New Moon, - -	5th day, at 38 m. after 11 morning.
First Quarter, -	13th - - 2 - - 4 morning.
Full Moon, -	21st - - 29 - - 1 morning.
Last Quarter, -	27th - - 27 m. past midnight.

*Moon's Passage over the First Meridian.*

The Moon will be on the first meridian at the following times during the present month; and consequently, if the weather be favourable, she may be conveniently observed in that position.

February 12th, at 21 m. past 5 in the evening.

13th, -	6	-	6	-	-	-	-
14th, -	52	-	6	-	-	-	-
15th, -	44	-	7	-	-	-	-
16th, -	36	-	8	-	-	-	-
17th, -	30	-	9	-	-	-	-
18th, -	23	-	10	-	-	-	-
19th, -	14	-	11	-	-	-	-
27th, -	1	-	5 morning.	-	-	-	-
28th, -	58	-	5	-	-	-	-

*Eclipses of Jupiter's Satellites.*

The eclipses of Jupiter's first and second satellites during this month are as follow, viz.

## EMERSIONS.

1st Satellite, 2d day, at 2 m. after 5 morning.

18th, -	17	-	3	-	-	-
25th, -	11	-	5	-	-	-

## IMMERSIONS.

3d Satellite, 18th day, at 24 m. past 2 morning.

20th - - 59 - - 4 - - -

*Other Phenomena.*

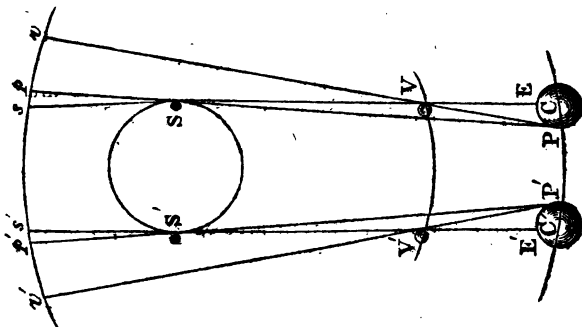
Mercury will be stationary on the 5th, and attain his greatest elongation on the 19th of this month; and Saturn will be in conjunction at 6 in the evening of the 27th. The Moon will be in conjunction with Mars at 44 m. past 8 in the evening of the 14th; and with the star  $\alpha$  in Libra, at 37 m. after 4 in the morning of the 26th.

*On the TRANSITS of VENUS.*

[Concluded from p. 19.]

The observations on this subject which we have extracted from Dr. Halley's paper, in our last month, as well as the subject itself, which may perhaps appear abstruse to some of our readers, will be illustrated by the following diagram.

Let S, S' represent the Sun, and V, V' Venus at the beginning and end of the transit, as she would appear from the earth's centre. Also let E, E' be the corresponding positions of the earth at those times.



Then, if the observer could be situated at C, the centre of the earth, when Venus entered on the solar disc, she would appear as a small black spot at S; and the true place of both her and the eastern limb of the Sun in the heavens would be s. But if

the observer were situated at any point on the earth's surface as  $P$ , the apparent place of Venus would be at  $v$ , and the apparent place of the corresponding limb of the Sun would be at  $p$ ; and consequently Venus would appear to the eastward of the Sun, by a space equal to the arc  $vp$ , which is the difference of the parallaxes of these two bodies. Hence the immersion of Venus would not take place so soon to an observer at  $P$  as to one at  $C$ , by the time which she would require to describe the apparent arc  $vp$ .

Now as the transit always takes place during the inferior conjunction of the planet, the motions of both Venus and the earth will then be from east to west, while the motion of the earth on its axis is in a contrary direction; consequently while Venus and the earth move in their orbits, from  $V$  to  $V'$  and from  $E$  to  $E'$ , the point  $P$ , which at the commencement of the motion was west of the centre, will at the end of it be on the east of it, as at  $P'$ . Hence the observer who was supposed to be situated at  $C$  would perceive Venus just leaving the Sun's disc, and her apparent place would be  $s'$ ; while to the observer at  $P'$  her apparent place would be at  $v'$ , and that of the Sun's western limb at  $p'$ . The apparent distance of Venus from the Sun at the end of the transit is therefore the arc  $v'p'$ , which is equal to the difference of the parallaxes of the Sun and Venus, as before. Consequently, the time of the duration as observed at the point  $P$  will be less than the absolute duration by the time which the planet would require to describe the two apparent arcs  $vp$  and  $v'p'$ , or twice the difference of the parallaxes of the Sun and the planet.

The absolute duration is found by calculation, in the same manner as for an eclipse of the Sun, while the apparent duration of the transit is obtained by observation. In this calculation Venus will take the place of the Moon; her apparent diameter is much less, and her motion is retrograde. All the circum-

stances of the eclipse must first be determined for the centre of the earth; and if the parallaxes of the Sun and planet were nothing, these circumstances would be the same both for the centre and any point whatever on the surface: the difference therefore arises from parallax. Hence the results obtained for the centre may be regarded as first approximations very near the truth, to which the small corrections must be made that are necessary for transferring them to the different points of observation.

For this simple case, the question is precisely the same as for any other eclipse, and the formulæ we have already given for that purpose, in our fourth volume, are immediately applicable for computing the time of the transit. However, as there will not be another of these phenomena for more than fifty years, few of our readers will have an opportunity of comparing the result of the calculation with that of the observation, and we shall not therefore enter into a further explanation of the process; but merely observe that its application to the transit that took place in June 1769, gave the parallax of the Sun  $= 8''.5721$ , which answers to his distance from the earth at the time of the transit. But to bring this to his mean distance from the earth, it must be multiplied by the inverse ratio of these distances, which increases it by  $0''.1296$ ; and consequently the sum is  $8''.7017$ , the solar parallax corresponding to his mean distance. The horizontal parallax of Venus, as determined by the same process, is  $30''.1149$ .

According to the calculations of the most eminent astronomers, the following transits of Venus are all that will occur between the years 1631 and 2110, with the days on which they will take place, viz.

1631	- - -	December 6	1874	- - -	December 8
1639	- - -	December 4	1882	- - -	December 6
1761	- - -	June - 5	2004	- - -	June - 7
1769	- - -	June - 3	2109	- - -	December 10

That which happened in 1639 is believed to have



been the first phenomenon of this kind that was either predicted or observed; which was done by Mr. James Horrox, a young astronomer of great genius and attainments, at Hool near Liverpool.

Delambre has calculated all the transits of this planet that will take place between the years 900 and 3000; and states 35 as the utmost number that can happen in that period. He also says, that in order that the passage may take place, it is necessary that the geocentric latitude of the planet multiplied by the cosine of the true inclination of its orbit must be less than the half sum of the diameters of the Sun and Venus. The geocentric latitude depends upon the heliocentric latitude, which also depends upon the distance of Venus from her node. From these considerations, this astronomer finds the following expression for the limit of the passage, or the distance of the planet from the node, which gives a simple contact, viz.

$$D = \frac{(s + p' - p) \cdot (V - v)}{v \sin I \cdot \cos I'},$$

where  $D$  denotes the distance from the node,  $s$  the half sum of the diameters,  $p'$  and  $p$  the parallaxes of Venus and the Sun,  $V$  and  $v$  the true radii vectores,  $I$  the true, and  $I'$  the apparent inclination of the orbit.

If the distance from the node be less than this value, the passage will take place; but if greater, there will not be any passage.

#### OCCULTATION of the STARS.

Nearly related to the preceding subject is that of the occultation of the fixed stars, which implies the obscuration of these heavenly bodies by the Moon or a planet. The only method of ascertaining whether an occultation will happen is that of calculating the place of the Moon at the ecliptic conjunction. The course of the Moon, however, affords limits to these occurrences, which enable astronomers to judge when

they will take place; for *Cassini* has remarked that all stars, whose latitudes do not exceed  $6^{\circ} 36'$  either north or south, may suffer an occultation on some part of the earth; and if the latitudes are not more than  $4^{\circ} 32'$ , the occultation may happen on any part of the earth. To determine when these eclipses will happen, therefore, compute the time of the mean conjunction, and the true latitude of the Moon at that epoch; and then if the difference of the latitudes of the Moon and the star exceed  $1^{\circ} 37'$ , there cannot be any occultation; but if this difference be less than  $51'$ , there must be an eclipse of the star on some part of the earth: between these limits the occultation may or may not take place.

The occultations which we notice in the course of our labours are those only that are visible at the Royal Observatory, at Greenwich; but the times specified will answer very nearly for most parts of the kingdom. In very distant places a great difference will result from the change in the Moon's parallax, and even this difference may be so great as altogether to prevent the obscuration from taking place. When an occultation of a fixed star by the Moon is observed in a place of well known latitude and longitude, it may be applied to the correction of the lunar tables; but if the latitude of the place only be well known, the observation may be applied for determining the longitude. This method of determining the longitude, however, though very correct, requires an accuracy of calculation which renders it troublesome to those persons who are not much accustomed to astronomical computations.

It would, however, be of great service to geography and navigation if travellers and mariners would make observations of this kind as often and as carefully as possible, as by this means the longitude of various places would receive correction, and the requisite calculations might be subsequently made, either by themselves, or scientific men to whom the results of

their observations might be submitted. The limits of our plan, however, preclude us from explaining, in this place, the particular rules and methods by which this is to be accomplished.

## The Naturalist's Diary

For FEBRUARY 1818.

Unlovely parent of the changeful hour,  
Chill FEBRUARY, on thy palsied steps  
All winter rages, with his savage train !  
The leaden-coloured day both moist and bleak ;  
The shifting wind that round the compass veers ;  
And frequent from thy dripping wings pour down  
Cold showers or slippery sleet.

In February, the weather in England is usually variable, but most inclined to frost and snow. The thermometer is often down below the freezing point, but is generally found at noon between  $36^{\circ}$  and  $46^{\circ}$ ; towards the end of the month it sometimes rises to  $50^{\circ}$ , or even  $52^{\circ}$  or  $54^{\circ}$ . The severe weather generally breaks up with a sudden thaw, accompanied by wind and rain; torrents of water pour from the hills, and the snow is completely dissolved. Rivers swell and inundate the surrounding country, often carrying away bridges, cattle, mills, gates, &c., and causing great injury to the farmer. But so variable is the weather in this month, that frequently 'frost again usurps the year.'

In the course of this month all nature begins, as it were, to prepare for its revivification. God, as the Psalmist expresses it, 'renews the face of the earth;' and animate and inanimate nature seem to vie with each other in opening the way to spring. About the 4th or 5th, the woodlark (*alauda arborea*), one of our earliest and sweetest songsters, renews his note; a week after, rooks begin to pair; the thrush sings; and the *yellow-hammer* is heard; to which last the

amiable author of the 'Birds of Scotland' has the following tributary lines :

Even in a bird the simplest notes have charms  
For me : I even love the YELLOW HAMMER's song.  
When earliest buds begin to bulge, his note,  
Simple, reiterated oft is heard  
On leafless briar, or half-grown hedgerow tree ;  
Nor is he silent until autumn's leaves  
Fall fluttering round his head of golden hue,  
Fair plumaged bird !

The chaffinch sings ; the green wood-pecker (*picus viridis*) makes a loud noise ; and the redbreast continues to warble. Turkey-cocks strut and gobble. Partridges (*tetrao perdix*) begin to pair ; the house pigeon has young ; field crickets open their holes ; missel thrushes couple ; and wood owls hoot ;—gnats play about, and insects swarm under sunny hedges ; frogs (*rana temporaria*) croak, and the stone curlew (*otus tedicnemus*) clamours. By the latter end of this month, the raven (*corvus corax*) has generally laid its eggs ; and begun to sit.

On antient oak or elm, whose topmast boughs  
Begin to fail, the RAVEN's twig-formed house  
Is built ; and, many a year, the self same tree  
The aged solitary pair frequent.  
But distant is their range ; for oft at morn  
They take their flight, and not till twilight grey  
Their slow returning cry hoarse meets the ear.

GRANAME.

Moles (*talpa europæus*) commence their subterraneous operations.—(See T. T. for 1814, p. 49.)

Soon as the potent frost relents, the soil  
Relaxed admits the labours of the mole ;  
The darkling miner upward turns his heaps  
In circles round the field ; that to the swain  
Annoyance brings, who drives his delving plough  
Direct. For busy labour now prepares  
For seed-time ; and the toiling oxen roll  
Their vacant eyes athwart the stubborn ground,  
And bow with awkward gestures as they turn,  
Oppressed beneath the galling yoke. Meanwhile  
The hills are vocal by the ploughman's voice,  
Resounding, as he cheers their struggling steps ;

The naked grove repeats the early lays  
 Of songsters floating in the melting air;  
 The willow hoar and hazel hedge are drest  
 In flowers that ask no summer's ripening ray:  
 With bleating flocks the valleys ring confused;  
 While tender lambs, tottering with novel life,  
 In shrill distress implore maternal aid,  
 The while they frequent tug the balmy teat.  
 Thus mild and soothing walks the gentle day,  
 And night, attentive to the woodlark's note,  
 Forgets her slumbers in the sweets of song.

BIDLAKE.

The flowers of the crocus (*crocus vernus*) appear, before their leaves are grown to their full length; the barren strawberry (*fragaria sterilis*); the laurustinus (*viburnum tinus*); and the yew-tree (*taxus baccata*), are in flower. The elder-tree (*sambucus nigra*) begins to put forth its flower buds, and the catkins of the hazel are very conspicuous in the hedges. The gooseberry bush (*ribes grossularia*) and the red currant (*ribes rubrum*) show their young leaves about the end of the month. The hepatica (*anemone hepatica*), unless the weather be severe, gives brilliance to the garden with its bright pink flowers; and the houndstongue (*cynoglossum*) with its more modest flowers of pink or light blue. Many plants appear above ground in February, but few flowers, except the snow-drop, are to be found. This 'icicle changed into a flower' is sometimes fully opened from the beginning of the month.

The husbandman is now eager to commence the work of *ploughing*, which important business is finished in this month, if the weather permit.

To a MOUNTAIN DAISY :

On turning one down with the Plough.

Wee, modest, crimson-tipped flow'r,  
 Thou's met me in an evil hour;  
 For I maun crush among the stoure  
                                   Thy slender stem;  
 To spare thee now is past my pow'r,  
                                   Thou bonny gem!

Alas ! it's no thy neebor sweet,  
The bonnie lark, companion meet !  
Bending thee 'mong the dewy weat !  
Wi' spreckl'd breast,  
Whed upward-springing, blythe, to greet  
The purpling east.

Cauld blew the bitter biting-north  
Upon thy early, humble, birth ;  
Yet cheerfully thou glinted forth  
Amid the storm.  
Scarce reared above thy parent earth  
Thy tender form.

The flaunting flow'rs our gardens yield,  
High shelt'ring woods and wa's maun shield ;  
But thou beneath the random bield  
O' clod or stane,  
Adorns the histie *stibble field*,  
Unseen, alane.

There, in thy scanty mantle clad,  
Thy snawie bosom sun-ward spread,  
Thou lifts thy unassuming head  
In humble guise ;  
But now the *share* uptears thy bed,  
And low thou lies !

\* \* \* \* \*  
Such fate to suffering worth is giv'n,  
Who long with wants and woes has striv'n,  
By human pride or cunning driv'n  
To misery's brink ;  
Till, wretched of every stay but Heav'n,  
He, ruined, sink.

Ev'n thou, who mourn'st the daisy's fate,  
That fate is thine—no distant date :  
Stern Ruin's ploughshare drives, elate,  
Full on thy bloom ;  
Till crushed beneath the furrow's weight  
Shall be thy doom !

In this month, early potatoes are set, hedges repaired, trees lopped, and wet lands drained. Poplars, willows, osiers, and other aquatics, are planted.

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<sup>1</sup> See the remainder of this beautiful poem in Burns's Works, as also the 'Turning up a Mouse's Nest,' both of them exquisite little productions.

Pheasant-shooting usually terminates about the 1st, and partridge-shooting about the 15th, of this month. Among the juvenile sports of this month, skating and *sliding* are still practised, if a hard frost continue.

Again night passes, and severer frost  
 Binds fast impeded nature. Soon as morn  
 Kindles, the village younker tries his foot  
 Upon the frozen margin of the pool,  
 Fearful to venture on the slippery floor,  
 Lest, bursting with abrupt and hideous crash,  
 It drown his instep, and his naily shoe  
 Drench with the chilly element below.  
 Bold with success, he tries a daring stroke  
 Along its verge, and now magnanimous  
 Darts o'er the fragile centre of the flood  
 His long resounding slide. Safe borne to shore,  
 He turns impatient, and with rushing heel  
 Shapes o'er the pond his parallel return.  
 Then round and round he leads his gliding team  
 Of schoolmates well-assured, and panting Sport  
 Glows with her effort, nor bestows a thought  
 Upon the lurking peril of her game.

HURDIS.

The few fine days towards the latter end of this month afford many opportunities of cultivating our knowledge of Nature, even in her minutest works. The results of a morning's walk at this season are given at length in T. T. for 1817, p. 53.

Some particulars of the severity of the winter in Russia, Sweden, &c. have already been related in our former volumes: we shall now give a short account of this season in Spitzbergen.

The *single night* of this dreadful country begins about the 30th of October; the Sun then sets, and never appears till about the 10th of February. A glimmering, indeed, continues some weeks after the setting of the Sun: then succeed clouds and thick darkness, broken by the light of the Moon, which is as luminous as in England, and, during this long night, shines with unfailing lustre. The cold strengthens with the new year; and the Sun is ushered in with an unusual severity of frost.

By the middle of March, the cheerful light grows strong; the arctic foxes leave their holes; and the sea-fowl resort, in great multitudes, to their breeding places. The Sun sets no more after the 14th of May; the distinction of day and night is then lost.

In the height of summer the Sun has heat enough to melt the tar on the decks of ships; but from August its power declines: it sets fast. After the middle of September day is hardly distinguishable, and, by the end of October, takes a long farewell of this country: the days now become frozen, and winter reigns triumphant.

Earth and soil are denied to the frozen regions of Spitzbergen: at least, the only thing which resembles soil is the grit worn from the mountains by the power of the winds, or the attrition of cataracts of melted snow: this, indeed, is assisted by the putrefied lichens of the rocks, and the dung of birds, brought down by the same means. The composition of these islands is stone, formed by the sublime hand of omnipotent Power; not fritted into segments, transverse or perpendicular, but cast, at once, into one immense and solid mass. A mountain, throughout, is but a single stone, destitute of fissures, except in places cracked by the irresistible power of frost, which often causes lapses, attended by a noise like thunder, and scattering over their bases rude and extensive ruins.

The vallies, or rather glens, of this country, are filled with eternal ice or snow. They are totally inaccessible, and known only by the divided course of the mountains, or where they terminate in the icebergs or glaciers. No streams water their dreary bottoms; and even springs are denied. The mariners are indebted for fresh water solely to the periodical cataracts of melted snow in the short season of summer, or to the pools in the middle of the vast fields of ice.

Yet, even here, Flora deigns to make a short visit, and to scatter a scanty stock over the bases of the



hills : her efforts never rise beyond a few humble herbs, which shoot, flower, and seed, in the short warmth of June and July, and then wither into rest until the succeeding year. Among these, however, the salubrious scurvy-grass, the resource of distempered frames, is providentially most abundant.

Where the countries have been long inhabited, in all the arctic coasts of Europe, Asia, and America, the natives, with very few variations and exceptions, seem to be a distinct species both in body and mind, and not to be derived from the adjacent nations, or any of their better proportioned neighbours. Their stature is from four to four feet and a half, and their skins are swarthy. From use, they run up rocks like goats, and up trees like squirrels. They are so strong in the arm, that they can draw a bow which a stout Norwegian can hardly bend ; yet lazy even to torpidity, when not incited by necessity ; and pusillanimous and nervous to a hysterical degree. These are the natives of Finmark and Lapland. The coasts east of Archangel, as far as the river Oby, are inhabited by the Samoeids ; a race as short as the Laplanders, but much uglier, and more brutalized ; their food being the carcasses of horses, or any other animals. They use the reindeer to draw their sledges, but are not civilized enough to make it a substitute for the cow.

Hard by these shores, where scarce his freezing stream  
Rolls the wild Oby, live the last of men ;  
And half-enlivened by the distant Sun,  
That rears and ripens man as well as plants,  
Here human nature wears its rudest form.  
Deep from the piercing season sunk in caves,  
Here, by dull fires, and with unjoyous cheer,  
They waste the tedious gloom. Immersed in furs,  
Doze the gross race. Nor sprightly jest, nor song,  
Nor tenderness they know ; nor aught of life,  
Beyond the kindred bears that stalk without.  
Till morn, at length, her roses drooping all,  
Sheds a long twilight brightening o'er their fields,  
And calls the quivered savage to the chase.

THOMSON.

## MARCH.

AMONG the Romans, March, from Mars, was the first month, and marriages made in this month were accounted unhappy. The Saxons called March *lent-monat*, or *length-moneth*, 'because the days did first begin, in length, to exceed the nights.'

### Remarkable Days

In MARCH 1818.

#### 1.—SAINT DAVID.

SAINT David was the great ornament and pattern of his age. He spoke with much force and energy, but his example was more powerful than his eloquence; and he has in all succeeding ages been the glory of the British church. He continued in the see of St. David's many years; and having founded several monasteries, and been the spiritual father of many saints, both British and Irish, he died about the year 544, at a very advanced age.

The leek worn on this day by Welshmen is said to be in memory of a great victory obtained by them over the Saxons; they, during the battle, having leeks in their hats, to distinguish themselves, by order of St. David. Another account adds, that they were fighting under their King Cadwallo, near a field that was filled with that vegetable.

#### 1.—MIDLENT SUNDAY.

The middle or fourth Sunday in Lent was formerly called the Sunday of the Five Loaves, the Sunday of Bread, and the Sunday of Refreshment, in allusion to the gospel appointed for this day. It was also named *Rose-Sunday*, from the Pope's carrying a *golden rose* in his hand, which he exhibited to the people in the streets as he went to celebrate the eucharist, and at his return. *Mothering Sunday* is another name attached to this day, from the practice, in Roman

Catholic times, of people visiting their *mother-church* on Midlent Sunday. Hence, perhaps, the custom now existing in some parts of England, of children visiting their parents, and presenting them with money, trinkets, or some other trifle. *Furmety* is commonly a rural repast on this day. It is made of whole grains of wheat first parboiled, and then put into and boiled in milk, sweetened and seasoned with spices.

\*1. 1802.—NEW STOCK-EXCHANGE OPENED.

This spacious building, situated in Capel Court, Bartholomew Lane, is well adapted for the purpose. The Stock-Exchange is the market-place for buying and selling the national pledges, bearing interest by way of annuity, and called by the general term 'Stocks.' A *stock-broker* is one who buys or sells stock by commission for another. The brokerage is half-a-crown on every hundred pounds of stock bought or sold. A *stock-jobber* is one who, having property of his own in the funds, sells it out, and buys it in again at a profit or loss, as the price of the market rises or falls. A *gambler* in the funds is one who, possessing little or perhaps no property in the stocks, enters into speculative bargains to sell or buy at *future* periods certain portions of stock, at a stated *present* price; his loss or gain is therefore confined to the *differences* of the prices. This species of stock-jobbing being, like other gambling transactions, expressly prohibited by law, no action for the recovery of the loss can be maintained in any court of justice.

An unfortunate dealer in this market who becomes a bankrupt is designated by the term *lame duck*, and his retreat is called *waddling out of the alley*. Formerly the place of rendezvous for persons transacting business in the funds was Jonathan's coffee-house in 'Change-Alley, Cornhill. From this circumstance the word '*Alley*' is to this day familiarly used as a cant phrase for the Stock-Exchange; and a petty speculator in the funds is styled, 'a dab-

bler in the *Alley*.—(See *Butler's Chronological Exercises*, p. 66.)

2.—SAINT CHAD.

St. *Ceadda* or Chad was educated in the monastery of Lindisfarne, under St. Aidan; was afterwards Bishop of Lichfield, and died in the great pestilence of 673. Bede assures us that he zealously devoted himself to all the laborious functions of his charge, visiting his diocese on foot, preaching the gospel, and seeking out the poorest and most abandoned persons to instruct and comfort, in the meanest cottages and in the fields.—See further particulars of this Bishop in T. T. for 1815, p. 76.

\*5. 1707.—BISHOP BEVERIDGE DIED.

This excellent man was styled, 'the great reviver and restorer of primitive piety.' He was much celebrated also for his learning, which he wholly applied to promote the interest of his great Master. He was well skilled in the oriental languages and Jewish learning. Even so early as eighteen, he wrote a *Treatise on the Excellency and Use of the Hebrew, Chaldee, Syriac, Arabic, and Samaritan tongues*; with a *Syriac Grammar*. He was so highly esteemed among all learned and good men, that, when he was dying, one of the chief of his order deservedly said of him, 'There goes one of the greatest and one of the best men that ever England bred.'

\*6. 1710.—CHIEF JUSTICE HOLT DIED.

He was in great repute for steadiness, integrity, and a thorough knowledge of his profession. In the reign of James II, he was Recorder of London; but lost his place for refusing to expound the law suitably to the King's designs. He continued chief justice for 22 years. Upon great occasions he asserted the law with intrepidity, though he thereby ventured to incur, by turns, the indignation of both houses of Parliament. It is well when it can be said of judges, as it was of Paterculus a Roman, that a man might

as soon put the sun out of his course, as move him to pervert justice.

When the son of Henry IV was committed to prison for striking the judge on the bench, the King no sooner heard of it, than he cried out in a transport of joy, 'Happy is the king who has a magistrate possessed of courage to execute the laws, and still more happy in having a son who will submit to such chastisement.'

#### 7.—PERPETUA.

Perpetua, a noble lady of Carthage, only 22 years of age, suffered martyrdom in 203, by order of Minutius Firmianus, under the persecution of the Emperor Severus. In the amphitheatre, Perpetua was exposed to the attacks of a wild cow, and, after being much gored by this animal, she languished for some time under the wounds given her by a young and unskilful gladiator.

#### \*7. 1804.—BRITISH AND FOREIGN BIBLE SOCIETY INSTITUTED.

The wide circulation of the Bible, and the munificent patronage which this Society has met with, lead us to contrast the present opportunities afforded for reading the scriptures, with the almost total ignorance of them about the commencement of the sixteenth century. Numbers could not read; most only muttered mass in an unknown tongue, and read a legend on festivals; and the very best seldom saw the Bible! It was held by many that the doctrines of religion were so properly expressed by schoolmen, that there was no need to read scripture. One of eminence was asked, What were the Ten Commandments, and he replied, There was no such book in the library! Many doctors of the Sorbonne declared and confirmed it by an oath, that, though they were above 50 years of age, yet they had never known what a New Testament was. Luther never saw a Bible till after he was 21 years of age, and had taken a degree of arts. Carolstadt had been a

doctor of divinity eight years before he read the Scriptures ; and yet, when he stood for a degree in the university of Wirtemberg, he obtained an honour, and it was entered in the university records, that he was *sufficientissimus*. Pellican could not procure one Greek Testament in all Germany : the first he got was from Italy. Bishop Stillingfleet mentions that there was scarcely another copy of the Greek Testament in all Germany, except that in the possession of Erasmus ; that his utmost diligence to procure a complete copy from which to make his translation was unavailing ; and that, when his translation appeared, it was seriously accused by many ecclesiastics with being a forgery intended to ruin their order. ‘ I thank God,’ said a bishop who lived before the Reformation, ‘ that I have lived well these many years, and never knew the Old or New Testament.’—(*Buck’s Expositor*, p. 64.)

\*7. 1755.—BISHOP WILSON DIED, ÆT. 93.

Bishop Horne, then only Dean of Canterbury and President of Magdalen College, Oxford, on the publication of Bishop Wilson’s Works, gave the following character of them, in a letter to the Bishop’s son : ‘ I am charmed with the view the books afford me of the good man your father, in his diocese and in his closet. The *Life*, the *Sacra Privata*, the *Maxims*, the *Parochialia*, &c. exhibit altogether a complete and lovely portrait of a Christian Bishop going through all his functions with consummate prudence, fortitude and piety—the pastor and father of a happy island for near threescore years ! The case is really an unique in ecclesiastical history. The Sermons are the affectionate addresses of a parent to his children, descending to the minutest particulars, and adapted to all their wants. In a delicate and fastidious age, they may perhaps be slighted for their plainness and simplicity ; but they were just what they should be for the place and people. To use an illustration of his own, he is the best physician who cures the most patients : and at the last

great day, may they who value themselves on their learning, their elegance, and their eloquence, give as good an account of their stewardship as the Bishop of Sodor and Man !'

#### 8.—FIFTH SUNDAY IN LENT.

*Dominica in Passione*, or Passion Sunday, was the name given to this day in missals ; as the church now began to advert to the sufferings of Christ. In the north, it is called *Carling* Sunday, and grey peas, first steeped a night in water, and fried with butter, form the usual repast.

#### 12.—SAINT GREGORY.

Saint Gregory, surnamed the Great, was born about the year 540. Gadianus, his father, enjoyed the dignity of a senator, and was very wealthy. Our saint, in his youth, applied himself to the study of grammar, rhetoric, and philosophy ; and afterwards to the civil law, and the canons of the church, in which he was well skilled. He was consecrated Pope about the year 590, and died in 604. Before his advancement to the see, Gregory projected the conversion of the English nation, but did not accomplish his wishes until he had assumed the papal chair.

#### 15.—PALM SUNDAY.

In the missals, this day is denominated *Dominica in ramis Palmarum*, or Palm Sunday, and was so called from the palm branches and green boughs formerly distributed on that day, in commemoration of our Lord's riding to Jerusalem. Sprigs of *box-wood* are still used as a substitute for *palms* in Roman Catholic countries.—See also T. T. for 1815, p. 84.

#### 17.—SAINT PATRICK.

The tutelar saint of Ireland was born in the year 371, in a village called *Bonaven Tabernæ*, probably Kilpatrick, in Scotland, between Dunbriton and Glasgow. When sixteen years old, he was carried into captivity by certain barbarians, together with many of his father's vassals and slaves, and was

taken to Ireland, where he kept cattle on the mountains and in the forests, in hunger and nakedness, amid snows, rain, and ice. After six months, our saint escaped from this slavery, only to fall into the hands of another master. At length emancipated, he travelled into Gaul and Italy, and spent many years in preparing himself for the holy functions of a priest, studying intensely until his 55th or 60th year. Being successively ordained deacon, priest, and bishop, he received the apostolical benediction from Pope Celestine, and was sent by him, about the beginning of the year 432, to preach the gospel in Ireland. He died at the good old age of 123, and was buried at Down, in Ulster.—See T. T. for 1815, p. 80, and Jocelyn's Life and Miracles of St. Patrick.

The order of St. Patrick was instituted by George III, in 1783. It consists of the sovereign, a grand master, a prince of the blood royal, and thirteen knights, making in the whole sixteen, and seven officers. The lord lieutenant for the time being is the grand master. The star is charged with three imperial crowns of gold, within a circle of gold, with the motto, *QUIS SEPARABIT*, *MDCCLXXXIII*, the whole surrounded with eight rays of silver; and is embroidered on the left side of the coat or cloak. The collar is of pure gold, composed of six harps and five roses, alternately joined together by five knots. In the centre before, is a crown, from which is suspended the badge or jewel of the order, of gold, enamelled, which (the rays excepted) is similar to the star.

18.—EDWARD, KING OF THE WEST SAXONS.

He was stabbed in the back by order of his mother-in-law, Elfrida, at Corfe-castle, in Dorsetshire. The youth and innocence of this prince (says Hume), with his tragical death, begat such compassion among the people, that they believed miracles to be wrought at his tomb; and they gave him the



appellation of martyr, though his murder had no connexion with any religious principle or opinion. Elfrida built monasteries, and performed many penances, in order to atone for her guilt; but could never, by all her hypocrisy or remorse, recover the good opinion of the public, though so easily deluded in those ignorant ages.

#### 19.—MAUNDY THURSDAY.

This day is called in Latin *dies Mandati*, the day of the command, being the day on which our Lord washed the feet of his disciples, as recorded in the second lesson. This practice was long kept up in the monasteries. After the ceremony, liberal donations were made to the poor, of clothing and of silver money, and refreshment was given them to mitigate the severity of the fast. On the 15th April, 1731 (Maundy Thursday), the *Archbishop of York washed the feet* of a certain number of poor persons. James II was the last king who performed this in person. A relic of this custom is still preserved in the donations dispensed at St. James's on this day; the ceremonies of which, as also those at Rome and Moscow on this day, are described at length in T. T. for 1815, p. 86.

#### 20.—GOOD FRIDAY.

This day commemorates the sufferings of Christ, as a propitiation for our sins. Holy Friday, or the Friday in Holy Week, was its more antient and general appellation; the name Good Friday is peculiar to the English church. It was observed as a day of extraordinary devotion. Buns, with crosses upon them, are usually eaten in London and some other places on this day, at breakfast.—For an account of ceremonies in various places, consult T. T. for 1815, p. 68, and our last volume, pp. 89-91.

#### 21.—SAINT BENEDICT.

Benedict, or *Bennet*, was born at Norcia in Italy, about the year 480, and of an honourable family.

Being sent by his parents to Rome, to complete his studies, he became disgusted with the licentiousness of the Roman youth, and retired to the mountain of Subiaco, about forty miles from the city. Bennet was now only fifteen, and lived for three years in a cave, Romanus, a monk, giving him provisions; these were let down by a rope, with a bell affixed, to give notice to the holy recluse. Bennet founded the monastery of Cassino in 529: it was built on the brow of a very high mountain, on the top of which there was an old temple of Apollo, surrounded with a grove. The Benedictine order of monks, first instituted by our saint, was, in the ninth century, at its height of glory.

#### 21.—EASTER EVE.

Particular mortifications were enjoined to the earliest Christians on this day. From the third century, the fast was indispensable and rigid, being protracted always to midnight, sometimes to the cock-crowing, and sometimes to the dawn of Easter-day; and the whole of the day and night was employed in religious affairs.

#### 22.—EASTER DAY, OR EASTER SUNDAY.

Much difference of opinion prevailed in the Eastern and Western churches respecting the precise time of observing Easter; till, in 325, the Council of Nice declared that the feast should be kept by all churches on the same day. Easter is styled by the fathers the highest of all festivals, the feast of feasts, the queen of festivals, and *Dominica Gaudii*, the joyous Sunday. Masters granted freedom to their slaves at this season, and valuable presents were made to the poor.

The august ceremonies performed at Rome on this day, Whitsunday, and other festivals, are noticed in T. T. for 1815, p. 165; the magnificent pageant at Moscow, on account of the Resurrection, is also described at p. 90 of the same volume. For a variety of old English customs observed at Easter, we refer to T. T. for 1814, pp. 82-84.

## 23, 24.—EASTER MONDAY AND TUESDAY.

Every day in this week was formerly observed as a religious festival, sermons being preached and the sacrament administered. In many places, servants were permitted to rest from their usual employments, that they might constantly attend public worship. During fifteen days, of which the paschal solemnity consisted, the courts of justice were shut, and all public games, shows, and amusements, were prohibited : it is unnecessary to observe that this practice has long ceased, and that the Easter week is usually devoted to relaxation and amusement.

25.—ANNUNCIATION OF THE B. V. M., or *Lady Day*.

This day celebrates the angel's message to the Virgin Mary, respecting our Blessed Lord. She was, probably, an only child, and but fifteen years of age when espoused to Joseph. She died A.D. 48, being about sixty years old.

## \*26. 1756.—GILBERT WEST DIED.

The learned translator of Pindar, and the pious author of the *Essay on the Resurrection*, which gave rise to the very excellent *Observations on the Conversion of St. Paul*, by Lord Lyttelton.

## \*28. 1801.—SIR RALPH ABERCROMBIE DIED.

This able general fell in Egypt in the moment of victory. An expedition having been ordered to dispossess the French of this country, Sir Ralph was appointed to command it, and he landed at Aboukir on the 8th of March 1801, after a severe battle in which the English were victorious. The landing, the first dispositions, the attack, and the courage opposed to attack, the high confidence of the army in their general, and the decided superiority of the British infantry under his command over the French, which was thought the bravest and best disciplined infantry in Europe, all demonstrated that the highest qualities of the greatest commanders were united in Sir Ralph Abercrombie.

After having repulsed the French in a general attack.

upon our army near Alexandria, the French again, on the 21st of March, made a second advance, which was contested with unusual obstinacy, and they were again forced to retreat. On this memorable occasion, he received a mortal wound in the thigh, which he concealed until the enemy were totally routed, when he fell from his horse, through loss of blood. He was conveyed from the field of battle on board the admiral's ship, where he died on the 28th, and was interred under the Castle of St. Elmo, in La Valetta, in the island of Malta.

The following just and admired tribute to his memory was contained in the despatch from Lord Hutchinson, who succeeded him in the chief command:—‘ We have sustained an irreparable loss in the person of our never to be sufficiently lamented commander in chief, Sir Ralph Abercrombie; who was mortally wounded in the action, and died on the 28th of March. I believe he was wounded early; but he concealed his situation from those about him, and continued in the field giving his orders with that coolness and perspicuity which had ever marked his character, till long after the action was over, when he fainted through weakness and loss of blood. Were it permitted for a soldier to regret any one who has fallen in the service of his country, I might be excused for lamenting him more than any other person; but it is some consolation to those who tenderly loved him, that, as his life was honourable, so his death was glorious. His memory will be recorded in the annals of his country; will be sacred to every British soldier, and embalmed in the recollection of a grateful posterity.’

There is a handsome monument to his memory in St. Paul's Cathedral, unanimously voted by the House of Commons; and a pension of £2000 was settled on his family.

29.—LOW SUNDAY.

It was a custom among the primitive Christians,

on the first Sunday after Easter-Day, to repeat some part of the solemnity of that grand festival; whence this Sunday took the name of *Low Sunday*, being celebrated as a feast, though in a lower degree.

## Astronomical Occurrences

In MARCH 1818.

THE Sun enters Aries at 44 m. after 4 in the morning of the 21st of this month; and his rising and setting will take place as specified in the following

TABLE

*Of the Sun's Rising and Setting for every Fifth Day.*

March 1st,	Sun rises	35 m. after 6.	Sets	25 m. after 5
6th,	- -	25 - - 6.	-	35 - - 5
11th,	- -	15 - - 6.	-	45 - - 5
16th,	- -	5 - - 6.	-	55 - - 5
21st,	- -	55 - - 5.	-	5 - - 6
26th,	- -	46 - - 5.	-	14 - - 6
31st,	- -	36 - - 5.	-	24 - - 6

### *Equation of Time.*

When the mean time is to be found from that marked by a good sun-dial, the quantities in the following table must be used for the times specified, and those for intermediate periods found by proportion.

TABLE.

									m.	s.
Sunday, March	1st,	to the time by the dial	add	-	-	-	-	-	12	43
Friday, - -	6th,	- - - - -	-	-	-	-	-	-	11	38
Wednesday, -	11th,	- - - - -	-	-	-	-	-	-	10	28
Monday - -	16th,	- - - - -	-	-	-	-	-	-	8	59
Saturday, -	21st,	- - - - -	-	-	-	-	-	-	7	29
Thursday, -	26th,	- - - - -	-	-	-	-	-	-	5	56
Tuesday, -	31st,	- - - - -	-	-	-	-	-	-	4	23

### *Phases of the Moon.*

New Moon, - -	7th,	day at	1 m. before	1 morning.
First Quarter, -	15th,	- -	8 m. after	1 afternoon.
Full Moon, - -	22d,	- -	1 - -	2 afternoon.
Last Quarter, -	29th,	- -	37 - -	7 morning.

*Moon's Passage over the Meridian.*

If the weather permit, the Moon may be seen on the first meridian at the following convenient times for observation during the present month.

March 14th,	at 40 m. past	5 evening.
15th, - 31	- - -	6 - - -
16th, - 24	- - -	7 - - -
17th, - 17	- - -	8 - - -
18th, - 9	- - -	9 - - -
19th, - 59	- - -	9 - - -
20th, - 49	- - -	10 - - -
28th, - 0	- - -	5 morning.
29th, - 3	- - -	6 - - -

*Eclipses of Jupiter's Satellites.*

There will only be one eclipse of the first and one of the second satellite visible at Greenwich this month, and these will happen as follows:—

## IMMERSIONS.

1st Satellite, March 29th,	at 19 m. after	5 morning.
2d - - - - -	24th, - 57	- - - 4 - - -

*Other Phenomena.*

On the 2d of this month Venus and Saturn will be in conjunction, the former planet being  $13\frac{1}{4}$  north of the latter. Venus will also be in her superior conjunction at half past 11 on the night of the 12th. The Moon and Mars will also be in conjunction at 10 m. past 3 in the morning of the 15th. On the 16th, Mercury and Saturn will likewise be in conjunction, the former being  $34\frac{1}{4}$  north of the latter. Mars will be in quadrature at half past 8 in the evening of the 16th. The Georgium Sidus will also be in quadrature at 45 m. after 4 on the morning of the 11th, and stationary on the 25th.

*On the DISTANCES, MAGNITUDES, MOTIONS, &c., of the HEAVENLY BODIES.*

The principal use to which astronomers apply the transits of Venus, of which we have treated in the

two preceding months, is in determining the distance of the Sun from the earth by means of his parallax, which, on account of its smallness, they have in vain attempted to ascertain by various other methods. The principal obstacles arose from the minuteness of the angles, and which could not be determined with sufficient accuracy by the nicest instruments. To ascertain the real distance of the Sun is undoubtedly one of the most important problems in astronomy, and one of the most incomprehensible to those who are unacquainted with the subject. The difficulty, however, entirely vanishes when the Sun's horizontal parallax is accurately determined; for this is the angle at the centre of the Sun which is subtended by a radius of the earth, forming a right angle with the line supposed to join the centres of these two bodies, and, this radius being known, all the angles and one side of that triangle are given; and consequently the whole problem resolves itself into a simple proportion in plane trigonometry. Hence if the radius of the earth be taken for unity, we shall have the distance of the Sun in the same terms, by saying,

$$\text{as tan. } 8''\cdot7 : \text{rad.} :: 1 : 23742\cdot605,$$

the number of terrestrial radii in the distance between the centres of the earth and Sun: this is what is usually called its comparative or relative distance, on account of the assumed unit; but if this number be multiplied by 3979, the English miles in the earth's semidiameter, we shall have the absolute distance in English miles equal to 94471825, or near 94½ millions.

Having thus determined the distance of one of the heavenly bodies, considering the earth as a planet, those of the others are easily found from the duration of their sidereal revolutions, by means of one of those celebrated laws which were discovered by *Kepler* and demonstrated by *Newton*; viz. that *the squares of the times of their revolutions are proportional to the cubes of their mean distances*. Hence the time which each of the planetary bodies occupies in mak-

ing one complete revolution in its orbit being found by observation, and the distance of any one of them ascertained, the proportion affords a ready means of finding all the others.

The first object is, therefore, to determine the duration of each of these revolutions; and the most simple and direct means of accomplishing this is to observe the interval of time which elapses between two consecutive passages of the planet through the same node. As the nodes are subject to variation, it is necessary to take this into the account for the interval between the observations. As the planetary motions are also liable to other perturbations, their mean movements should be concluded from a series of observations comprehending a great number of revolutions; so that the periodic inequalities being several times compensated during the interval, what error still remains in the definitive result may be rendered insensible by being divided among those revolutions. The following are the periodic times of the planetary revolutions, thus determined according to the most eminent astronomers :—

*Duration of the Sidereal Revolutions of the Planets.*

Mercury	- - - - -	87·9692 days.
Venus	- - - - -	224·7082
The Earth	- - - - -	365·2564
Mars	- - - - -	686·9796
Juno	- - - - -	1335·205
Vesta	- - - - -	1590·998
Ceres	- - - - -	1681·539
Pallas	- - - - -	1681·709
Jupiter	- - - - -	4332·5963
Saturn	- - - - -	10758·9698
Uranus	- - - - -	30688·7127

The times of revolution and the distance of the earth from the Sun being thus known, the distances of all the others are found by the proportion above stated. Thus, if the respective distances of any two



planets be denoted by  $D$  and  $d$ , and their times of revolution by  $T$  and  $t$ ; we shall have

$$T^2 : t^2 :: D^3 : d^3,$$

$$\text{or } \frac{t^2}{T^2} = \frac{d^3}{D^3};$$

$$\text{from which } D^3 = \frac{d^3 T^2}{t^2},$$

$$\text{and } D = d \sqrt[3]{\frac{T^2}{t^2}}.$$

Now as the distance between the Sun and the earth has been found, and the time of its revolution also ascertained, if these be substituted instead of  $d$  and  $t$  in this formula, the mean distance of any of the planets from the Sun will be attained in terms of the earth's distance from the Sun. Reducing this formula to numbers, and taking the earth's distance for unity, which is the term in which astronomers usually compute the planetary distances, gives

$$D = \sqrt[3]{\frac{T^2}{(365.2564)^2}} = .01957 T^{\frac{2}{3}}.$$

Now, by applying this formula to each of the planets respectively, we shall obtain their relative mean distances from the Sun, as stated in the following table; viz.

Mercury	- - - - -	0.38710
Venus	- - - - -	0.72333
The Earth	- - - - -	1.00000
Mars	- - - - -	1.52369
Juno	- - - - -	2.37300
Vesta	- - - - -	2.66716
Ceres	- - - - -	2.76741
Pallas	- - - - -	2.76759
Jupiter	- - - - -	5.20279
Saturn	- - - - -	9.53877
Uranus	- - - - -	19.18330

As these relative distances are expressed in that of the earth from the Sun, if they be severally multiplied

by the number of miles already found for that distance, we shall have their absolute distances in English miles, as follow, viz.

Mercury	- - - - -	36 750 043
Venus	- - - - -	68 334 305
The Earth	- - - - -	94 471 825
Mars	- - - - -	143 945 775
Juno	- - - - -	224 181 641
Vesta	- - - - -	251 971 473
Ceres	- - - - -	261 442 273
Pallas	- - - - -	261 459 278
Jupiter	- - - - -	491 517 066
Saturn	- - - - -	901 145 010
Uranus	- - - - -	1812 281 360

The immense distance of these bodies from the centre of the system, when expressed in miles, renders the numbers difficult to be remembered; but this difficulty may be avoided, and sufficient accuracy preserved for all common purposes, by taking only the millions and the nearest small fraction, as follows:—

<i>Mill. of Miles.</i>		<i>Mill. of Miles.</i>	
Mercury	- - - - 36½	Ceres	- - - - 261½
Venus	- - - - 68½	Pallas	- - - - 261½
The Earth	- - - - 94½	Jupiter	- - - - 491½
Mars	- - - - 144	Saturn	- - - - 901
Juno	- - - - 224½	Uranus	- - - - 1812½
Vesta	- - - - 252		

Besides the real and comparative distances of the planets from the Sun, as above stated, their greatest and least distances from the earth are sometimes computed by astronomers. The *greatest* distance of a planet from the earth is equal to the sum of the aphelion distances of the earth and the planet.

The *least* distance of an inferior planet from the earth is the difference between the perihelion distance of the earth and the aphelion distance of the planet. But for a superior planet, the least distance is equal to the difference between the perihelion distance of the planet and the aphelion distance of the earth. The least distance of each of the old planets from the

earth, in English miles, is contained in the following table; viz.

	<i>English Miles.</i>
Mercury - - - - -	49 098 695
Venus - - - - -	24 230 626
Mars - - - - -	34 693 028
Jupiter - - - - -	374 046 803
Saturn - - - - -	759 073 011
Uranus - - - - -	1 643 222 619

The least distance of the Sun and Moon from the earth are also,

Sun - - - - -	98 463 048
Moon - - - - -	, 221 588

[To be continued.]

## The Naturalist's Diary

For MARCH 1818.

Thy beams are sweet, beloved Spring!  
 The winter shades before thee fly;  
 The bough smiles green, the young birds sing,  
 The chainless current glistens by;  
 Till countless flowers, like stars, illumine  
 The deepening vale and forest gloom.  
 Oh! welcome, gentle guest from high,  
 Sent to cheer our world below,  
 To lighten sorrow's faded eye,  
 To kindle nature's social glow:  
 Oh! he is o'er his fellows blest,  
 Who feels thee in a guiltless breast.

THE superabundant moisture of the earth is now dried up, and the process of vegetation is gradually brought on: those trees which, in the last month, were budding, now begin to put forth their leaves; and the various appearances of nature announce the approach of SPRING<sup>1</sup>. The latest springs, however,

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<sup>1</sup> See a beautiful 'Elegy on the Approach of Spring' in our last volume, p. 85.

are always the most favourable, because, as the young buds do not appear so soon, they are not liable to be cut off by chilling blasts.

Slow teeming Nature, struggling, meets the day,  
Though ample promise smiles in every bud ;  
And silken softness all the tender leaves  
Unfolds, while the rude breeze, with lips of ice,  
Imprints a fatal kiss, and cruel chills  
The mild and purple flush of early hope.  
Fresh verdure delicately clothes the shrub ;  
First of the garden train, the *gooseberry* buds,  
And puts its fearless blossom forth. More slow  
The *current* swells. The *lilac's* emerald gems  
Seem eager to expand.

BIDLAKE.

The melody of birds now gradually swells upon the ear. The throstle (*turdus musicus*), second only to the nightingale in song, charms us with the sweetness and variety of its lays.

Sweet thrush ! whose wild untutored strain  
Salutes the opening year ;  
Renew those melting notes again,  
And sooth my ravished ear.

Though in no gaudy plumage drest,  
With glowing colours bright ;  
Nor gold, nor scarlet, on thy breast,  
Attracts our wond'ring sight ;

Yet not the pheasant, or the jay,  
Thy brothers of the grove,  
Can boast superior worth to thee,  
Or sooner claim our love.

M. RIDDELL.

The linnet and the goldfinch join the general concert in this month, and the golden-crowned wren (*motacilla regulus*) begins its song. Rooks build and repair their nests. Rooks, crows, and pigeons, it has been proved, are by no means so detrimental to the farmer as is generally imagined, though many of them still commit great havoc among these birds, and use every means in their power to frighten them away. (See T. T. for 1816, pp. 86, 87.)

Among the numerous singing birds which delight us with their notes in the spring, the *lark* must not be forgotten. The melody of this little creature continues during the whole of the summer. It is chiefly, however, in the morning and evening that its strains are heard; and as it chaunts its mellow notes on the wing, it is the peculiar favourite of every person who has taste to relish the beauties of nature at the most tranquil seasons of the day, particularly at dawn.—See some interesting particulars of this bird in our last volume, p. 76.

Sweetest warbler of the skies,  
 Soon as morning's purple dyes  
 O'er the eastern mountains float,  
 Wakened by thy merry note,  
 Thro' the fields of yellow corn;  
 That Mersey's winding banks adorn,  
 O'er green meads I gaily pass,  
 And lightly brush the dewy grass.

I love to hear thy matin lay,  
 And warbling wild notes, die away;  
 I love to mark thy upward flight,  
 And see thee lessen from my sight:  
 Then, ended thy sweet madrigal,  
 Sudden swift I see thee fall,  
 With wearied wing, and beating breast,  
 Near thy chirping younglings' nest.

Ah! who that hears thee carol free  
 Those jocund notes of liberty,  
 And sees thee independent soar,  
 With gladsome wing, the blue sky o'er,  
 In wry cage would thee restrain,  
 To pant for liberty in vain;  
 And see thee 'gainst thy prison grate  
 Thy little wings indignant beat,  
 And peck and flutter round and round  
 Thy narrow, lonely, hated bound;  
 And yet not ope thy prison door,  
 To give thee liberty once more?

W. SMITH.

In this month, trouts begin to rise; blood-worms appear in the water; black ants (*formica nigra*) are

observed ; the blackbird and the turkey (*meleagris gallopavo*) lay ; and house pigeons sit. The greenfinch (*loxia chloris*) sings ; the bat (*vespertilio*) is seen flitting about, and the viper uncoils itself from its winter sleep. The wheatear (*sylvia ananthe*), or English ortolan, again pays its annual visit, leaving England in September. They are found in great numbers about East Bourne, in Sussex, more than eighteen hundred dozen being annually taken in this neighbourhood. They are usually sold at sixpence a dozen.—See T. T. for 1816, p. 88.

Those birds which have passed the winter in England now take their departure for more northerly regions. The fieldfares (*turdus pilaris*) travel to Russia, Sweden, and Norway, and even as far as Siberia. They do not arrive in France till December, when they assemble in large flocks of two or three thousand. The red-wing (*turdus iliacus*), which frequents the same places, eats the same food, and is very similar in manners to the fieldfare, also takes leave of this country for the season. Soon after, the woodcock (*scolopax rusticola*) wings its aerial voyage to the countries bordering on the Baltic. Some other birds, as the crane and stork, formerly natives of this island, have quitted it entirely, since our cultivation and population have so rapidly increased.

Frogs, enlivened by the warmth of spring, rise from the bottom of ponds and ditches, where they have lain torpid during the winter.

*To a Frog.*

Poor being ! wherefore dost thou fly ?  
Why seek to shun my gazing eye,  
And palpitate with fear ?  
Indulge a passing traveller's sight,  
And leap not on in vain affright ;  
No cruel foe is here.

I would but pause a while to view  
Thy dappled coat of many a hue ;  
Thy rapid bound survey ;

And see how well thy limbs can glide  
 Along the sedge-crowned streamlet's tide,  
 Then journey on my way.

No savage sage am I, whose pow'r  
 Shall tear thee from thy rush-wove bow'r,  
 To feel th' unsparing knife ;  
 No barb'rous schemes this hand shall try,  
 Nor, to prolong thy death, would I  
 Prolong thy little life.

Ah ! let him not whose wanton skill  
 Delights the mangled frog to kill,  
 The wreath of praise attain !  
 Philosophy abhors the heart  
 That prostitutes her sacred art  
 To give one being pain.

The smelt (*salmo eperlanus*) begins to ascend rivers to spawn, when they are taken in great abundance.

On the 20th, the *vernal* equinox takes place. All Nature feels her renovating sway, and seems to rejoice at the retreat of winter. The willow (*salix*) now enlivens the hedges ; the aspen (*populus tremula*), and the alder (*alnus betula*), have their flowers full blown ; the laurustinus (*viburnum tinus*) and the bay (*laurus nobilis*) begin to open their leaves. The equinoctial gales are usually most felt, both by sea and land, about this time.

Our gardens begin now to assume somewhat of a cheerful appearance. Crocuses, exhibiting a rich mixture of yellow and purple, ornament the borders ; mezzereon is in all its beauty ; the little flowers ' with silver crest and golden eye,' daisies, are scattered over dry pastures ; and the pilewort (*ranunculus ficaria*) is seen on the moist banks of ditches. The primrose too (*primula veris*) peeps from beneath the hedge.

The leaves of honeysuckles are now nearly expanded : in our gardens, the buds of the cherry-tree (*prunus cerasus*), the peach (*amygdalus persica*), the nectarine, the apricot, and the almond (*prunus armeniaca*), are fully opened in this month. The buds of the hawthorn (*crataegus oxyantha*) and of the larch-tree

(*pinus larix*) begin to open; and the tansy (*tanacetum vulgare*) emerges out of the ground; ivy-berries are ripe; the daffodil (*pseudonarcissus*) in moist thickets, the rush (*juncus pilosus*), and the spurge laurel (*daphne laureola*), found in woods, are now in bloom.—The common whitlow grass (*draba verna*) on old walls; the yellow Alpine whitlow grass (*draba aizoides*) on maritime rocks; and the mountain pepper-wort (*lepidum petræum*) among limestone rocks, flower in March.

The sweet violet (*viola odorata*) sheds its delicious perfumes in this month.

Sweet VIOLETS! from your humble beds  
 Among the moss, beneath the thorn,  
 You rear your unprotected heads,  
 And brave the cold and cheerless morn  
 Of early March; not yet are past  
 The wintry cloud, the sullen blast,  
 Which, when your fragrant buds shall blow,  
 May lay those purple beauties low.  
 Ah stay awhile, till warmer showers  
 And brighter suns shall cheer the day;  
 Sweet Violets stay, till hardier flowers  
 Prepare to meet the lovely May.  
 Then from your mossy shelter come,  
 And rival every richer bloom;  
 For though their colours gayer shine,  
 Their odours do not equal thine.  
 And thus real merit still may dare to vie  
 With all that wealth bestows, or pageant heraldry.

C. SMITH<sup>1</sup>.

The gannets or Soland geese (*pelicanus bassanus*) resort in March to the Hebrides, and other rocky isles of North Britain, to make their nests and lay their eggs.

Much amusement may be derived in this month, as well as in the last, from watching the progress of worms, insects, &c. from torpidity to life, particularly on the edges or banks of ponds.—See our last volume, p. 53.

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<sup>1</sup> See her pleasing work, entitled 'Conversations on Natural History,' vol. i, p. 96.



Towards the close of the month, bees (*apis mellifica*) venture out of their hives. For a full account of this interesting insect we refer the reader to our four former volumes ; only selecting another flower from the wreath of the elegant poetess just quoted. It is an invocation to the bee.

Go while summer suns are bright,  
Take at large thy wandering flight ;  
Go and load thy tiny feet  
With every rich and various sweet ;  
Cling around the flowering thorn,  
Dive in the woodbine's bonied horn ;  
Seek the wild rose that shades the dell,  
Explore the foxglove's freckled bell ;  
Or in the heath flower's fairy cup  
Drink the fragrant spirit up.

But when the meadows shall be mown,  
And summer's garlands overblown ;  
Then come, thou little busy bee,  
And let thy homestead be with me :  
There, sheltered by thy straw-built hive,  
In my garden thou shalt live,  
And that garden shall supply  
Thy delicious alchemy.  
There, for thee, in autumn, blows  
The Indian pink and latest rose ;  
The mignonette perfumes the air,  
And stocks, unfading flowers, are there.

Yet fear not when the tempests come,  
And drive thee to thy waxen home,  
That I shall then most treacherously  
For thy honey murder thee :—

Ah, no !—throughout the winter drear  
I'll feed thee, that another year  
Thou may'st renew thy industry  
Among the flowers, thou little busy bee !

In the latter end of March, chickens run about ; a brimstone-coloured butterfly (*papilio rhamni*) appears ; sea-kale begins to sprout ; black beetles fly about in the evening ; and bats issue from their places of concealment. Roach and dace float near the surface of the water, and sport about in pursuit of insects. Daffodils are in flower ; peas appear above ground, and the male blossoms of the yew-tree expand and

discharge their farina. Sparrows are busily employed in forming their nests. Young lambs are weaned this month.

In this month the farmer dresses and rolls his meadows; spreads ant-hills; plants quicksets, osiers, &c.; sows flax seed, artificial grasses, beans and peas, broom and whin seeds, and grass seeds among wheat. About the 23d, he ploughs for and sows oats, and hemp and flax. A dry season is very important to the farmer, that he may get the seed early into the ground.

A pleasing picture of the farmyard, in this month, is drawn by Dr. Bidlake in his poem of the 'Year.'

With ceaseless clamour now the farmyard rings;  
The cock crows shrill defiance, strutting proud,  
And claps his sombre wings, while all around  
His troop of hens obsequious favour seek;  
He hears disdainful from the distant house  
His challenge answered; while low hiss the geese,  
Loud quack the ducks, that with their cleaving feet  
Sail o'er the pond. The snarling mastiff barks  
As beggars pass; and proud with circling tail,  
And sweeping wing, the turkey gobbles harsh.

The irritable hen, with her loud train  
Of new-hatched chickens to the humbler cots,  
Intent to pick the scattered crumbs, intrudes  
Fearless, though oft expelled. Clucking she calls  
Her family more close; at each attack  
Her ruffled pinions speak her sudden ire;  
The little brood some widow's humble wealth,  
Scant aid of age, partake congenial heat,  
And chirp incessant round the blazing hearth.

The wonderful instinct of the hen in constructing her nest and rearing her young is a subject worthy of our observation. With what caution does she provide herself a nest in places unfrequented, and free from noise and disturbance! When she has laid her eggs in such a manner that she can cover them, what care does she take in turning them frequently, that all parts may partake of the vital warmth! When she leaves them, to provide for her necessary sustenance, how punctually does she return before they

have time to cool, and become incapable of producing an animal ! In the summer, you see her giving herself greater liberty, and quitting her care for above two hours together ; but in winter, when the rigour of the season would chill the principles of life, and destroy the young ones, she grows more assiduous in her attendance, and stays away but half the time. When the birth approaches, with how much nicety and attention does she help the chick to break its prison ! Not to take notice of her covering it from the injuries of the weather, providing it proper nourishment, and teaching it to help itself ; nor to mention her forsaking the nest, if, after the usual time of reckoning, the young one does not make its appearance. A chemical operation could not be followed with greater art or diligence than is seen in the hatching of a chick.

The hen, considered in other respects, is without the least glimmering of thought or common sense. She mistakes a piece of chalk for an egg, and sits on it in the same manner ; she is insensible of any increase or diminution in the number of those she lays : she does not distinguish between her own and those of another species ; and when the birth appears of ever so different a bird, will cherish it for her own. In all these circumstances, which do not carry an immediate regard to the subsistence of herself or her species, she is a very idiot. In other birds, too, the object of this instinct appears to be merely the preservation of their species : for, notwithstanding the natural love of brutes is much more violent and intense than in rational creatures, Providence has taken care that it shall be no longer troublesome to the parent than it is useful to the young ; for as soon as the wants of the latter cease, the mother withdraws her fondness, and leaves them to provide for themselves : and what is a very remarkable circumstance in this part of instinct, we find that the love of the parent may be continued beyond its usual time, if the preservation of the species require it ; as we may see

in birds that drive away their young as soon as they are able to get their livelihood, but continue to feed them, if they are tied to the nest, confined in a cage, or by any other means appear not in a condition to supply their own necessities.

## APRIL.

APRIL is derived from *Aprilis*, of *aperio*, I open ; because the earth, in this month, begins to open her bosom for the production of vegetables. The Saxons called this month *oster-monat*, from the goddess Goster, or because the winds were found to blow generally from the east in this month.

## Remarkable Days

In APRIL 1818.

### 1.—ALL FOOLS' DAY.

ON this day every body strives to make as many fools as he can : the wit chiefly consists in sending persons on what are called sleeveless errands, for the *history of Eve's mother*, for *pigeon's milk*, *stirrup oil*, and similar ridiculous absurdities.

The making of April fools, after all the conjectures which have been formed touching its origin, is probably borrowed by us from the French, who call them April Fish (*Poissons d'Avril*), i. e. simpletons, or, in other words, silly mackerel, who suffer themselves to be caught in this month. But as, with us, April is not the season of that fish, we have very properly substituted the word ' FOOLS.'

On the custom of keeping *fools* at court, and the dress of the domestic fool in Shakspeare's time, consult T. T. for 1815, p. 118, et seq.

### 3.—RICHARD, Bishop.

Richard, surnamed *de Wiche*, from a place in Worcestershire where he was born, was educated at the

Universities of Oxford and Paris. He afterwards travelled to Bononia, where he studied the canon law for seven years. On his return home he was nominated to the see of Chichester by the chapter; but his appointment being opposed by the king, Richard appealed to Rome, and had his election confirmed by the pope, who consecrated him also at Lyons in the year 1245. He was as remarkable for his learning and diligence in preaching, as he was for integrity. Richard was canonized by Pope Urban.

#### 4.—SAINT AMBROSE.

Our saint was born about the year 340, and was educated in his father's palace, who was Prætorian Præfect of Gaul. He ruled over the see of Milan with great piety and vigilance for more than twenty years; during which time, he gave all his money to pious uses, and settled the reversion of his estate upon the church. He converted the celebrated St. Augustine to the faith, and, at his baptism, composed that divine hymn, so well known in the church by the name of *Te Deum*. He died aged 57, A.D. 396.

#### \*7. 1520.—RAFFAELLO DIED, ÆT. 37.

Every accomplishment and qualification necessary to form an illustrious painter were combined in Raffaello; a sublimity of thought, a fruitful and rich invention; remarkable correctness in drawing and design, and a wonderful disposition and expression. His attitudes are noble, natural, and graceful, and contrasted without the smallest appearance of affectation or constraint; and to the elegance and grandeur of the antique he added the simplicity of nature; for, though he admired the antique statues as highly as he ought, yet he studied nature with equal assiduity; from which combined attention to both, resulted that amazing variety and elegance in the forms, actions, and attitudes of his figures, and those delicate and graceful airs of the heads which distinguish his compositions from all others; and in which he surpassed the greatest masters, who flourished since the revival

of the art of painting. The Royal collection of his Cartons at Hampton Court, from which some most beautiful engravings have been executed, is an invaluable treasure to the artist. But the excellency of these extraordinary productions is not to be discovered at the first glance; they must be carefully and attentively examined before their merit can be fitly appreciated. A person of acknowledged taste and judgment, who also was an idolizer of Raffaello, visiting the Vatican with an eager desire to study his works, passed by those very compositions with indifference, which were the objects of his enquiry and curiosity, till he was recalled by his conductor, who told him that he had overlooked what he sought for.

The greatest remains of Raffaello's pencil are the frescoes at the Vatican. His oil pictures (of which his immortal *Transfiguration* is the chief) are dispersed throughout Europe, and are every where regarded as inestimable. The most eminent engravers have considered his works as the noblest employment of their art, and more than 740 pieces have been enumerated as engraved from the designs of Raffaello.

\*7. 1807.—LALANDE DIED.

Lalande, if not the most profound and original, was certainly the most learned astronomer of France, and the principal promoter of the science to which he was so passionately devoted. Before the age of twenty-five, he was admitted into almost all the learned academies, and pensioned by the principal monarchs of Europe. He travelled through many states, and was every where received with demonstrations of the most enthusiastic respect. Unmarried, and being without posterity to pursue the career on which he had shed so much lustre, he took under his protection two relatives, one of whom, a young man of great hope, perished in La Vendée, and the other became one of the most indefatigable of the

French astronomers. He bred up also to astronomy the children of his nephew. It was necessary, under the pain of forfeiting his favour and friendship, that all belonging to him should be observers and calculators. Eminently useful to astronomy by his works, his example, instruction, influence, and correspondence, he was desirous that this utility might be continued after his death; and with that view he founded a prize, to be adjudged annually by the Institute, to the author of the best memoir, or most curious observations on that subject. Lalande was remarkable for the most egregious vanity, as well as the broadest eccentricities of character, and almost equally eminent for the most noble virtues of the heart. About the commencement of the Revolution he became a professed atheist; and towards the latter part of his life displayed every mark of insanity. This was so visible to all, that, at an extraordinary sitting of all the classes of the Institute, convoked for the purpose, Lalande being present, a letter was announced from the Emperor Napoleon, and read aloud, in which it was declared that Lalande had fallen into a state of *détage*, and was therefore forbidden to publish any thing in future under his own name. The old astronomer immediately rose very solemnly, made a low bow, and replied that he would certainly obey the orders of his Majesty.

\*9. 1626.—LORD BACON DIED.

It is a singular example of the confidence with which original genius reposes upon the merit of its own productions, and assures itself of posthumous fame, that Lord Bacon inserted in his last will the following remarkable passage: "My name and memory I leave to foreign nations; and to mine own countrymen, after some time be passed over." When young, he formed the grand conception that he was born to benefit mankind: in his letter to Fulgentio he styled himself the servant of posterity; in all his philosophical labours, he, to the latest hour of his life,

considered himself in this light : and succeeding ages have abundantly proved that he was not mistaken. The ever increasing pile of natural knowledge, which philosophers, following his method of experimental investigation, have been enabled to raise, is an eternal monument to his memory, on which distant posterity will read this inscription : **BACON, THE FATHER OF EXPERIMENTAL PHILOSOPHY.**

The moral defects which were interwoven with intellectual excellencies in his character, it is impossible to disguise or forget, and in vain to palliate. The nobler were his conceptions, the more culpable was his obliquity of conduct. Flaws are most to be regretted in the most precious gems. When we meet with a Bacon disgracing himself by servility, ingratitude, and corruption, nothing remains but to lament such mortifying instances of human frailty, and to take care to draw from the instructive fact, the right moral inference. — In the present case, instead of hastily concluding, that superior talents are rather to be dreaded than desired, as Pope seems to have done, when he wrote,

If parts allure thee, think how Bacon shined  
The wisest, brightest, meanest of mankind ;

we should infer the infinite superiority of the pursuits of intellect above those of ambition. Had Bacon been contented with being a philosopher, without aspiring after the honours of a statesman and a courtier, he would have been a greater and a happier man. Lord Bacon was buried privately in Saint Michael's church, at St. Alban's, Herts ; and the spot that contains the remains of this great man lay obscure and undistinguished till the gratitude of a private individual, formerly his servant ; ' living, his attendant ; dead, his admirer ; ' erected a monument to his name and memory.

\*17. 1790.—**DR. FRANKLIN DIED, ET. 84.**

**Dr. Franklin, perhaps, has scarcely been surpassed**



by any man, in that solid, practical wisdom, which consists in pursuing valuable ends by the most appropriate means. His cool temper and sound judgment secured him from false views and erroneous expectations; he saw things in their real light, and predicted consequences with almost prophetic accuracy. In all his speculations and pursuits, something beneficial was ever in contemplation; and his general character is sanctioned by the esteem and veneration of his country, which ranks him among its best and most valuable citizens. As a natural philosopher his fame is principally founded upon his electrical discoveries. He has, however, displayed great ingenuity and sagacity upon other topics, particularly relative to meteorology and mechanics. It was his peculiar talent to draw useful lessons from the commonest occurrences, which would have passed unnoticed by the generality of observers. As a political writer he is characterised by force, clearness, and simplicity; and of his miscellaneous pieces, many are marked with a cast of humour which render them equally entertaining and impressive.

His 'Private Correspondence,' recently published in a quarto volume, exhibits the author to equal advantage as a philosopher, man of business, moralist, and negotiator; here also will be seen the profound legislator and familiar friend, who opens his mind and delivers his sentiments with the same ingenuousness on matters of science and policy, the conduct of private life, and the interests of nations. His letters on public concerns are models of epistolary composition.

#### 19.—SAINT ALPHEGE.

A native of England, Alphege was first Abbot of Bath, then Bishop of Winchester, in the year 984, and, twelve years afterwards, Archbishop of Canterbury. In the year 1012, the Danes being disappointed of some tribute money which they claimed as due to them, they entered Canterbury, and burnt

both the city and church, and the greater part of the inhabitants were put to the sword. After seven months' miserable imprisonment, the good archbishop was stoned to death at Greenwich.

\*19. 1807.—JOHN OPIE DIED.

Opie was the son of a carpenter, and was born at St. Agnes, near Truro, in Cornwall. He early indicated a disposition for the arts of design, and his first experiment, when about the age of ten, was to imitate a companion in drawing a butterfly. Soon after being with his father, who was repairing a gentleman's house at Truro, he was so much struck with the picture of a farmyard, that, after attentively surveying it, he went home, procured canvas and colours, and, by piecemeal, produced from memory a tolerable resemblance of the work. He then made a bold attempt at portrait. When between ten and eleven, one Sunday, his mother being at church, and his father sitting in a little parlour, reading the Bible, he placed himself in the kitchen opposite, and began to sketch his father's figure, frequently running in to get a nearer view of his face, till the old man was put quite in a passion at the interruption. This was what the young artist wanted. He instantly marked down his animated features, and finished his piece, the great resemblance of which excited no little pride both in his parent and himself. His bent was now decided, and pursuing this new object with great diligence, though at first against his father's approbation, as likely to spoil him for a carpenter, he furnished the house with portraits of all the family, and of his companions. His rustic fame now reached the ear of Dr. Wolcott, better known by the name of Peter Pindar: patronized by this gentleman, he came to London, and made rapid strides in his profession.

Opie, like almost all English painters, was obliged to look upon *portrait* as his staple, and was often very happy in it, though more in male than female figures,

for the latter of which he was thought deficient in ideas of grace and beauty. His historical works, however, are not few, and many of them must always be highly valued for the powerful impressions they excite. His 'Lectures on Painting at the Royal Academy' were published after his death, by his widow, in one volume, 4to, with a Memoir written by herself, whence we have gleaned the above particulars.

### 23.—SAINT GEORGE.

Saint George is the patron Saint of England ; for which the following reason is assigned : When Robert, Duke of Normandy, the son of William the Conqueror, was fighting against the Turks, and laying siege to the famous city of Antioch, which was expected to be relieved by the Saracens, St. George appeared with an innumerable army coming down from the hills all clad in white, with a red cross on his banner, to reinforce the Christians ; this so terrified the infidels, that they fled, and left the Christians in possession of the town. Under the name and ensign of St. George, our victorious Edward III, in 1344, instituted the most noble Order of the Garter. St. George is usually painted on horseback, and tilting at a dragon under his feet, as represented on the reverse of the new *Sovereigns* now in circulation. The college of the Order of St. George is held in Windsor-castle, within the chapel of *St. George*, and the chapter-house, erected by the founder for that purpose. The habit and ensigns of the order, are, a surcoat, garter, mantle, hood, george, collar, cap, and feathers. The motto on the garter and star is, *Honi soit qui mal y pense* (evil be to him that evil thinks). The garter, is of blue velvet bordered with gold. The george is the figure of St. George, on horseback, in armour, encountering a dragon with a tilting spear, the whole of gold enamelled. It may be enriched with jewels at the pleasure of the possessor. It is worn across the right shoulder pendant to a garter

blue or dark riband. The collar is of gold. Charles II ordained that the knights should always wear in public, embroidered on the left side of their coats or cloaks, the cross of St. George, surrounded with the garter, with rays of silver, forming a star of eight points.

\*24. 1816.—THOMAS JOHNES DIED.

This amiable man was for many years known to the world, in a variety of public capacities ; as a senator, a planter, an agriculturist, an ornamental gardener, and a man of letters. His translations of Froissart and Monstrelet are a real acquisition to English literature, and are eminent proofs of his talents and industry. His good *taste* was particularly shown in the erection of a splendid mansion at *Hafod*, in South Wales, and in the laying out of his grounds. He strictly followed nature. No incongruous ornaments, no studied surprises, no frivolity of decoration, broke in upon the harmony of the scene. The bleakness of the hills, indeed, he obviated by the means of trees, of which, in the course of sixteen years, he planted no less than 2,065,000. As these grew up, they added to the beauty of the ever-varying prospect, which was rendered the more rich and interesting by the contrast which it presented to the lengthened sterility with which it was surrounded ; a perfect *Eden* situated in the midst of a perfect *wilderness*. But this paradise did not long escape the flaming sword ; while Mr. Johnes was attending his parliamentary duties, the noble mansion, and a great part of his fine library, were destroyed by fire ! His wife and daughter were saved with the greatest difficulty !

In the hour of affliction, Mr. Johnes never gave way to despondency. He bore this heavy loss with fortitude and equanimity. Grateful to that Providence which had spared to him the objects of his chief solicitude, he diverted his mind from unavailing regrets as to the past, by laying plans for the future.

That this is not a fanciful representation of the tone of his mind on this trying occasion, is evinced by the following letter, in which he announced to one of his friends the intelligence of the destruction of his princely mansion :—

London, March 16, 1807.

‘ My dear S—,

‘ I shall begin with good news. I came here last Thursday very well.—My wife and child are very well.—I have sold the priory well.—Now the reverse of the medal is, that Hafod was burnt down last Friday.—No lives lost.—Thank God it was not worse.—To-day I set out for the ruins.—I must renew the fable of the Phoenix.

‘ Always yours, most sincerely,

‘ T. JOHNES.’

‘ P. S. I fear the precious cahiers of Monstrelet have perished.’

The fable of the Phoenix *was* renewed; and another mansion, with many improvements, arose from the ruins of the former. The loss of his only daughter some time afterwards, added to a lingering complaint, contributed to embitter the last days of Mr. Johnes: he retired into Devonshire to seek a milder air, for the recovery of his health, but without effect. A very interesting Memoir of this accomplished scholar and amiable man will be found in the ‘ Annual Biography and Obituary for 1817,’ p. 533, from which we have extracted the above particulars.

#### 25.—SAINT MARK.

St. Mark’s Gospel was written in the year 63. The order of knights of St. Mark at Venice, under the protection of this evangelist, was instituted in the year 737, the reigning doge being always grand master :—their motto was, ‘ *Pax tibi, Marce, Evangelista Meus.*’

#### 26.—ROGATION SUNDAY.

This day takes its name from the Latin term *rogare*, to ask; because, on the three subsequent days, *supplications* were appointed by Mamertus, Bishop of Vienna, in the year 469, to be offered up with fasting

to God, to avert some particular calamities that threatened his diocese.

\*27. 1794.—SIR WILLIAM JONES DYED.

It may convey some idea of the facility of his talents, and the exquisiteness of his memory, when it is recorded, that he understood no fewer than *twenty-eight languages*, eight of which had been acquired with critical correctness. In respect to his literary achievements also, they were so numerous as to exhibit an Herculean task never before attempted, or attained, in an equal number of years.

His celebrity, indeed, is astonishing, and, in point of character, his is one of the fairest of the age in which he lived, both as to integrity and patriotism; while in respect to genius, general literature, and deep research, it is second to none, in the annals of his country. Pious, regular, punctual in the discharge of all his duties; he was a perfect model in private life. Patient, indefatigable, uncorrupt, and at the same time gifted with a wonderful degree of precision and equanimity; he exhibited the perfect pattern of an upright Judge: critically acquainted with the architecture of the English constitution, he admired that noble fabric, in its antient primeval Saxon simplicity; and lamented that its noble Gothic arch had been disfigured and undermined by the modern torrent of corruption. So pure was he in regard to his principles, that he obtained the appellation of the 'English Cato;' so universal in respect to attainments, that he bore a near resemblance to the 'admirable Crichton,' while a learned Dutch Professor<sup>1</sup> termed him 'the Phoenix of his day, and the ornament of the age.'

It is greatly to be lamented that Sir William Jones did not succeed in his wish to represent his *alma mater* (Oxford) in Parliament, as it would have detained him in England, and might have preserved, for many additional years, a life so dear and so precious to his coun-

<sup>1</sup> H. A. Schultens.

try. This was the object of his highest ambition ; and one for which, as he himself was accustomed to say, he would gladly have sacrificed ' not only an Indian Judgeship of six thousand a year ; but a Nabobship, with as many millions.'

To conclude, he literally sacrificed his life to a nice sense of duty,—the completion of a code of laws for our Hindoo and Mohammedan subjects in India ;—and was worthy to live either in the times of Harmodius and Aristogiton, to whose triumph he attuned his lyre ; or of Hampden and Sidney, whose lives and whose death alike constituted the theme of his eulogium<sup>1</sup>.

APRIL — 1756.—WILLIAM GIFFORD BORN, author of the well known translation of Juvenal, and writer of the most interesting piece of autobiography ever produced, prefixed to his Juvenal. The following beautiful lines are from the same pen :

I wish I was where Anna lies ;  
For I am sick of ling'ring here,  
And every hour Affection cries,  
Go, and partake her humble bier.

I wish I could ! For when she died  
I lost my all ; and life has proved  
Since that sad hour a dreary void,  
A waste unlovely, and unloved.—

But who, when I am turned to clay,  
Shall duly to her grave repair,  
And pluck the ragged moss away,  
And weeds that have ' no business there ?'

And who with pious hand shall bring  
The flow'rs she cherished, snowdrops cold,  
And vi'lets that unheeded spring,  
To scatter o'er her hallowed mould ?

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<sup>1</sup> See ' Annual Biography and Obituary for 1817,' p. 444, where is an excellent life of Sir William Jones, which does ample justice to his political principles, a subject scarcely noticed by Lord Teignmouth. Some original and important letters have been also inserted in this new life.

And who, while mem'ry loves to dwell  
Upon her name for ever dear,  
Shall feel his heart with passion swell,  
And pour the bitter, bitter tear ?

I did it ; and, would fate allow,  
Should visit still, should still deplore—  
But health and strength have left me now,  
And I, alas ! can weep no more.

Take then, sweet maid ! this simple strain,  
The last I offer at thy shrine ;  
Thy grave must then undecked remain,  
And all thy mem'ry fade with mine.

And can thy soft persuasive look,  
Thy voice that might with music vie,  
Thy air, that ev'ry gazer took,  
Thy matchless eloquence of eye,  
Thy spirits, frolicsome, as good,  
Thy courage, by no ills dismayed,  
Thy patience, by no wrongs subdued,  
Thy gay good-humour—Can they ' fade !'

### 30.—ASCENSION DAY.

From the earliest times, this day was set apart to commemorate our Saviour's ascension into heaven : all processions on this, and the preceding rogation days, were abolished at the reformation. In London, on this day, the minister, accompanied by the churchwardens, and a number of boys, with wands, walk in procession, and *beat the bounds* of the parish. But this is not always practised, nor in every year.

Holy Thursday was formerly a day of great festivity at *Beziers*, a town in the south of France, and was celebrated with a variety of little sports. A whimsical procession, called the procession of the Camel, constituted a part of them. A figure representing that animal, with a man in the inside, was paraded about the town, and, by means of some machinery which the man directed, the figure was made to perform many ridiculous tricks, to the great amusement of the spectators. The municipal officers, attended by the companies of the different trades and manufactures, preceded the camel ; it was followed by a



cart, over which were branches of trees twined into an arbour, and filled with as many people as could possibly be crammed into it : the cart was drawn by mules ornamented with bunches of flowers and ribands ; a number of people stuck over with flowers and little twigs of trees, who were called the wild men, followed the cart and closed the procession. After parading about the town all day, towards evening the whole company repaired to the chapel of the Blue Penitents, where they were met by the chapter of the cathedral, who had previously also gone in procession round the town, and then a large quantity of bread was given away by the chapter among the poor. Hence the day was called, in the language of the country, *lou jour de caritach*, the day of charity.

Another part of the ceremonies of the day was, that the peasants from the country for a great way round assembled in the streets with crooks in their hands, and, ranging themselves in long files on each side, made mock skirmishes with their crooks, aiming strokes at each other, in parrying which great dexterity was shown, and great emulation which should parry them the best. There were commonly many skirmishes in the course of the day, and each ended with a dance to the music of the fife and tambourin. The inhabitants of the town also carried on among themselves a little warfare, in throwing sugar-plums and dried fruits at each other, from their windows, or as they passed in the streets.

Finally, the day was concluded by a favourite dance among the young men and women, called *la danse des treilles*. Every dancer carries a *cerceau*, as it is called, that is a half hoop, twined with vine branches ; and ranging themselves in long files on each side of the street, they form different groups, and in the evolutions of the dance make a variety of figures with the *cerceaux*, with wonderful grace and agility. The young men were all dressed in white jackets and trowsers, and the young women in white jackets with

short petticoats, and ornaments of flowers and ribands.—(See *Plumtre's Residence in France*, vol. iii, p. 28.)

These curious sports were suspended during the Revolution, but, since the return of the *ancien regime*, have again contributed to amuse the people.

## Astronomical Occurrences

In APRIL 1818.

THE Sun enters Taurus at 20 m. after 5 in the evening of the 20th of this month; and he rises and sets as stated in the following

TABLE

*Of the Sun's Rising and Setting for every fifth Day.*

April 1st, Sun rises 34 m. after 5. Sets 26 m. after 6

6th, - - - 24 - - 5 - 36 - - 6

11th, - - - 14 - - 5 - 46 - - 6

16th, - - - 5 - - 5 - 55 - - 6

21st, - - - 55 - - 4 - 5 - - 7

26th, - - - 46 - - 4 - 14 - - 7

### *Equation of Time.*

If it were required to find the mean time from apparent time, as shown on a good sun-dial, the quantities must be added or subtracted as shown in the following table; and if the quantity be required for any intermediate time, it is to be found by proportion.

TABLE.

		m.	s.
Wednesday, April 1st, to the time by the dial	add	4	5
Monday, - - - - - 6th, - - - - -		2	35
Saturday, - - - - - 11th, - - - - -		1	10
Thursday, - - - - - 16th, from the time by the dial	sub.	0	8
Tuesday, - - - - - 21st, - - - - -		1	18
Sunday, - - - - - 26th, - - - - -		2	16

*Phases of the Moon.*

New Moon,	- -	5th day,	at 44 m. after 3 afternoon
First Quarter,	- 13th,	- - 51	- - 7 evening
Full Moon,	- - 20th,	- - 13	- - midnight
Last Quarter,	- 27th,	- - 4	- - 3 afternoon.

*Eclipse of the Moon.*

There will be a visible eclipse of the Moon on the 20th of this month, the circumstances of which are as follow; viz.

Beginning of the eclipse,	11 m. after 11 at night
Ecliptic opposition	- - 13½ - - 0 morning
Middle of the eclipse	- 21½ - - 0 - - -
End of the eclipse	- - 31½ - - 1 - - -

Digits eclipsed  $5^{\circ} 32\frac{1}{4}$ , from the north side of the Sun's shadow, or on the Moon's southern limb.

*Moon's Passage over the Meridian.*

The Moon will be on the meridian which passes through the Royal Observatory at the following times, which will be convenient moments for observation if the weather be clear. The time of her passage over any other meridian must be computed by means of her horary motion.

April 13th, at 15 m. after 6 in the evening.

14th,	6	- - 7	- - - - -
15th,	57	- - 7	- - - - -
16th,	45	- - 8	- - - - -
17th,	33	- - 9	- - - - -
18th,	21	- - 10	- - - - -
19th,	10	- - 11	- - - - -
25th,	0	- - 4	in the morning.
26th,	4	- - 5	- - - - -
27th,	4	- - 6	- - - - -

*Eclipses of Jupiter's Satellites.*

The only eclipses of Jupiter's satellites that will be visible at Greenwich this month are the following; viz.

## IMMERSIONS.

1st Satellite,	5th day,	at 34 m. after 9 in the morning.
- - - - -	28th	- 43 - - 3 - - - - -

*Other Phenomena.*

Mercury will be in his superior conjunction at 15 m. after 12 on the 3d of this month; and Jupiter will be in quadrature at 20 m. past 1 in the morning of the 2d. The Moon will be in conjunction with Venus at 38 m. after 4 in the morning of the 6th; and with the star marked  $\alpha$  in Libra, at 58 m. after 8 in the evening of the 21st. On the 7th, Mercury and Venus will be in conjunction, the former being 39' south of the latter.

*On the DISTANCES, MAGNITUDES, MOTIONS, &c.,  
of the HEAVENLY BODIES.*

[Continued from p. 66.]

From having the times of the sidereal revolutions of the several planets, it is easy to derive their mean daily motions, or the arcs they respectively describe in 24 sidereal hours. This is done by dividing 360, the number of degrees in the circumference of a circle, by the number of days occupied by the planet in making one complete revolution. Thus we obtain the mean daily motions as below:—

					°	'	"
Mercury	-	-	-	-	4	5	33
Venus	-	-	-	-	1	36	8
The Earth	-	-	-	-	0	59	8
Mars	-	-	-	-	0	31	27
Juno	-	-	-	-	0	16	11
Vesta	-	-	-	-	0	13	35
Ceres	-	-	-	-	0	12	51
Pallas	-	-	-	-	0	12	50
Jupiter	-	-	-	-	0	4	59
Saturn	-	-	-	-	0	2	04
Uranus	-	-	-	-	0	0	42½

The mean velocities of the planetary motions may also be found from the same source; for the mean distance being known, a circle is easily found equal to the extent of the planetary orbit; and this being divided by the time of the planet's revolution, in days or hours, will give the space described in that period,

and, consequently, the velocity of the planet. In this manner the following spaces hourly described by each planet have been determined, in English miles, taken to the nearest mile :—

Mercury	- - - - -	109 370
Venus	- - - - -	79 614
The Earth	- - - - -	67 713
Mars	- - - - -	54 856
Juno	- - - - -	43 957
Vesta	- - - - -	41 367
Ceres	- - - - -	40 706
Pallas	- - - - -	40 702
Jupiter	- - - - -	29 700
Saturn	- - - - -	21 928
Uranus	- - - - -	15 460

Perhaps scarcely any thing within the whole sphere of creation is more adapted to astonish and overpower the reflecting mind, than the velocity with which the planets pursue the undeviating courses marked out by the Great Author of their existence. Who can reflect upon the inconceivable rapidity of more than *thirty miles* per second, with which Mercury has moved since the commencement of time, and not be led to exclaim with the enraptured MILTON, while with his *mental* eye he surveyed the true sublime of creation,—

These are thy glorious works; Parent of good!  
Almighty; thine this universal frame,  
Thus wondrous fair; thyself how wondrous then?

The apparent diameters of the heavenly bodies are found by observation. For this purpose a micrometer is generally used, the two parallel wires of which are brought into apparent contact with two opposite points of the disc of the planet, and then the apparent diameter of the planet is marked by the index of the instrument. Having thus ascertained the apparent diameters, and knowing their distances from the earth, their *real* diameters are easily calculated by the rules of trigonometry.

The apparent diameters of the old planets have been

found, by the most accurate observations, to subtend the following angles at their greatest and least distances from the earth; viz.

*Least distance.    Greatest distance.*

Mercury	-	-	-	-	11 <sup>''</sup> ·275	-	-	5 <sup>''</sup> ·000
Venus	-	-	-	-	59·843	-	-	9·623
Mars	-	-	-	-	17·075	-	-	3·564
Jupiter	-	-	-	-	44·485	-	-	30·132
Saturn	-	-	-	-	20·120	-	-	16·297
Uranus	-	-	-	-	4·115	-	-	3·694

The apparent diameters of the planets at their mean distances may be found by taking the mean of the above numbers for each.

The apparent diameter of the Sun at his mean distance from the earth is 32' 3"; and that of the Moon 31' 8".

The apparent diameters of the four new planets are so small as not to be susceptible of being measured by common micrometers, and consequently considerable difficulty arises in ascertaining them with sufficient accuracy to constitute the basis of calculation. According to the observations of some astronomers, the diameters of these planets would not exceed the fraction of a second; but according to the observations of M. Shroëter, the apparent diameter of Ceres, when nearest the earth, is double that of the first satellite of Jupiter, or about 3". Ceres is encompassed with a nebulous appearance, the diameter of which appeared to that astronomer to be about 2<sup>''</sup>·5; but the real diameter of the planet was only about 1<sup>''</sup>·83. These diameters, at the mean distance of the Sun, would subtend angles of 6<sup>''</sup>·382 and 3<sup>''</sup>·057. He also found for Pallas, under the same circumstances, that the angles were 6<sup>''</sup>·514 and 4<sup>''</sup>·504. Juno is still less, and at the same distance it would have only 3<sup>''</sup>·057 for its apparent diameter; but it has no sensible nebula. The diameter of Vesta has not been ascertained; but it is supposed not to be greater than these. It must be remarked, however, that these results are

not yet sufficiently established to be made the basis of calculation for determining their real diameters, magnitudes, &c.; and we have therefore omitted them in the subsequent tables.

The real diameters of the planets, in English miles, are,

Mercury	- - - - -	3038
Venus	- - - - -	7594
The Earth	- - - - -	7916
Mars	- - - - -	4096
Jupiter	- - - - -	85968
Saturn	- - - - -	79021
Uranus	- - - - -	34287
The diameter of the Sun	- -	884534
That of the Moon	- - -	2161

The comparative diameters of these bodies, when that of the earth is taken for unity, are about,

Mercury	- - - - -	0.3538
Venus	- - - - -	0.9593
The Earth	- - - - -	1.0000
Mars	- - - - -	0.5174
Jupiter	- - - - -	10.8600
Saturn	- - - - -	9.9825
Uranus	- - - - -	4.3314
The Sun	- - - - -	111.7500
The Moon	- - - - -	0.2730

The magnitudes of these celestial bodies (that is their cubic contents) vary as the cubes of their diameters; and hence their comparative magnitudes are exhibited in the following table, in which that of the earth is taken for unity.

Mercury	- - - - -	0.0443
Venus	- - - - -	0.8828
The Earth	- - - - -	1.0000
Mars	- - - - -	0.1385
Jupiter	- - - - -	1280.8240
Saturn	- - - - -	994.7600
Uranus	- - - - -	81.2615
The Sun	- - - - -	1395544.0000
The Moon	- - - - -	0.0204

Hence, if each of these numbers were multiplied by the number of cubic miles in the content of the

earth, the products would be the real magnitudes of the other bodies in the same terms; but here the numbers would be too great to afford the mind any clear idea of the bodies they were designed to represent. A much better notion would be formed of their relative size, by supposing a number of globes to be made, that representing the earth being one inch in diameter; then the diameters of those which represent the other bodies would be as in the following table; viz. that which represented

Mercury, less than	- - - - -	$\frac{1}{4}$ inch
Venus, nearly	- - - - -	1
The Earth	- - - - -	1
Mars, a little more than	- - - - -	$\frac{1}{2}$
Jupiter, almost	- - - - -	11
Saturn, nearly	- - - - -	10
Uranus, almost	- - - - -	$4\frac{1}{2}$
The Sun, nearly	- - - - -	9 ft. $\frac{1}{4}$
The Moon, a little more than	- - - - -	$\frac{1}{2}$

To ascertain the masses and densities of the heavenly bodies, which are situated at such immense distances from us, appears at first to involve difficulties too great for the human mind to overcome; but even these difficulties have, in a great measure, vanished before the power of the Newtonian philosophy. The mass or quantity of matter in any body is as the product of its magnitude and density; or, if that body be a globe, as the cube of its diameter and density; hence, since the diameters are already ascertained, all that is necessary for the solution of this problem is to ascertain the densities of the several bodies. This astronomers accomplish by the united means of observation and computation, by which they ascertain the perturbations that each planet produces in the motions of the other planets, or in those of its own satellites.

For this purpose, the most eminent astronomers have formed equations with unknown coefficients, having a given ratio to the masses; and hence, when



the values of these coefficients have been determined by observation, those of the masses become known. When a planet has satellities, the effects which the primary produces in the revolutions of these become the subject of investigation for ascertaining the mass of the primary. In this case M. *Delambre* has given the following formula :

$$m = \left(\frac{a'}{a}\right)^3 \cdot \left(\frac{T}{t}\right)^2;$$

in which  $m$  is the mass of the planet in parts of the mass of the Sun,  $T$  the time of one sidereal revolution of the planet,  $a$  its mean distance from the Sun,  $t$  the revolution of the satellite, and  $a'$  its mean distance from the planet. Here the difficulty is to ascertain, with sufficient accuracy, the distance of the satellite from the planet about which it revolves, in order to have the ratio  $\frac{a'}{a}$ , which enters into mass with the required

correctness. Neither the masses nor the densities, however, have yet been determined with that precision which it is desirable to attain ; nor are those of the new planets yet known. The following masses have been determined by M. *Laplace*, and are regarded as the most accurate, that of the Sun being taken for unity :—

Mercury	- - - - -	$\frac{1}{503880}$
Venus	- - - - -	$\frac{1}{354932}$
The Earth	- - - - -	$\frac{1}{329830}$
Mars	- - - - -	$\frac{1}{2546320}$
Jupiter	- - - - -	$\frac{1}{1047}$
Saturn	- - - - -	$\frac{1}{3534}$
Uranus	- - - - -	$\frac{1}{19504}$
The Moon	- - - - -	$\frac{1}{32578970}$

As these fractions are so small, they will convey much clearer conceptions to the mind when the

masses of the various bodies are compared with that of the earth; and with this view we shall present them. They will then be,

Mercury	- - - - -	0.1687
Venus	- - - - -	0.9248
The Earth	- - - - -	1.0000
Mars	- - - - -	0.1292
Jupiter	- - - - -	308.9409
Saturn	- - - - -	95.8740
Uranus	- - - - -	16.9006
The Sun	- - - - -	399680.0000
The Moon	- - - - -	0.0146

The densities of bodies are to each other as their masses divided by their magnitudes; and hence, as the planets are nearly spherical bodies, which are as the cubes of their radii, their densities are as their masses directly and the cubes of their radii inversely. In this manner the following densities have been found, that of the Sun being assumed as unity; viz.

Mercury	- - - - -	10.1743
Venus	- - - - -	5.0446
The Earth	- - - - -	3.9393
Mars	- - - - -	2.6734
Jupiter	- - - - -	0.8601
Saturn	- - - - -	0.4951
Uranus	- - - - -	0.1376
The Sun	- - - - -	1.0000
The Moon	- - - - -	2.4656

If the density of the earth be taken for unity, the comparative density of the other bodies will then be as follows; viz.

Mercury	- - - - -	2.5827
Venus	- - - - -	1.2806
The Earth	- - - - -	1.0000
Mars	- - - - -	0.6786
Jupiter	- - - - -	0.2183
Saturn	- - - - -	0.1257
Uranus	- - - - -	0.0349
The Sun	- - - - -	0.2539
The Moon	- - - - -	0.6259

In order to furnish a still more familiar idea of this



## The Naturalist's Diary

For APRIL 1818.

Lo! where the rosy-bosomed Hours,  
Fair Venus' train appear,  
Disclose the long-expecting flowers,  
And wake the purple year!  
The attic warbler pours her throat,  
Responsive to the cuckoo's note,  
The untaught harmony of SPRING;  
While, whispering pleasure as they fly,  
Cool zephyrs through the clear blue sky  
Their gathered fragrance fling.

GRAY.

WITH the poets in every age Spring has been one of the most favourite subjects. When they would describe the beauties of Paradise, and the felicities of the Golden Age, there Spring flourishes in perpetual verdure, and smiles with everlasting pleasure.

Airs, vernal airs,  
Breathing the smell of field and grove, attune  
The trembling leaves, while universal Pan,  
Knit with the Graces and the Hours in dance,  
Lead on th' eternal SPRING.

Spring is described as a youth of a most beautiful air and shape, but not yet arrived at that symmetry of parts which maturer years might be supposed to give him. There is such a bloom, however, in his countenance, with such sweetness, complacency, and pleasure, that he appears created to inspire every bosom with delight. He is dressed in a flowing mantle of green silk, interwoven with flowers; a chaplet of roses on his head, and a jonquil in his hand. Primroses and violets spring up spontaneously at his feet; and all nature revives at his exhilarating aspect. Flora attends him on one hand, and Vertumnus, in a robe of changeable silk, on the other. Venus, with no other ornament than her own beauties, follows after. She is succeeded by the Graces with their arms entwined, and with loosened girdles,

moving to the sound of soft music, and striking the ground alternately with their feet. The Months that properly belong to this season, appear likewise in his train, with suitable emblematic decorations.

Pleasure is represented as taking her flight in winter to cities and towns, and revisiting the gladdened country in spring. Mrs. Barbauld has beautifully described this, as well as the gradual progress of the season, from its earliest infant efforts, to the perfection of vernal beauty in the delightful month of May:—

When Winter's hand the rough'ning year deforms,  
And hollow winds foretel approaching storms,  
Then Pleasure, like a bird of passage, flies  
To brighter climes, and more indulgent skies;  
Cities and courts allure her sprightly train,  
From the bleak mountain and the naked plain;  
And gold and gems with artificial blaze,  
Supply the sickly sun's declining rays.  
But soon, returning on the western gale,  
She seeks the bosom of the grassy vale;  
There, wrapt in careless ease, attunes the lyre,  
To the wild warblings of the woodland quire:  
The *daisied* turf her humble throne supplies,  
And early *primroses* around her rise.

\* \* \* \* \*

Now the glad earth her frozen zone unbinds,  
And o'er her bosom breathe the western winds,  
Already now the *snowdrop* dares appear,  
The first pale blossom of th' unripened year;  
As Flora's breath, by some transforming pow'r,  
Had changed an icicle into a flow'r:  
Its name and hue the scentless plant retains,  
And Winter lingers in its icy veins.  
To these succeed the *violet's* dusky hue,  
And each inferior flow'r of fainter hue;  
Till riper months the perfect year disclose,  
And Flora cries, exulting, See my *rose*.

What a wonderful revolution, indeed, in the universal aspect of Nature does the return of this lovely season exhibit! After having been long bound up with frost, or overspread with snow, the earth once more displays all the variety of plants and

flowers, is arrayed with the most beautiful and enlivening verdure, variegated with a numberless variety of hues, and exhales odours so exquisitely pure and fragrant, that every sense of every creature is awakened to inexpressible delight.

How cheerful along the gay mead  
 The daisy and cowslip appear!  
 The flocks, as they carelessly feed,  
 Rejoice in the spring of the year.  
 The myrtles that shade the gay bow'rs,  
 The herbage that springs from the sod,  
 Trees, plants, cooling fruits, and sweet flow'rs,  
 All rise to the praise of my God.  
 Shall Man, the great master of all,  
 The only insensible prove!  
 Forbid it, fair gratitude's call,  
 Forbid it devotion and love.  
 The Lord who such wonders could raise,  
 And still can destroy with a nod,  
 My lips shall incessantly praise:  
 My soul shall be wrapt in my God.

If there has been a medium proportion of easterly winds in the previous part of the winter, the month of April may be expected to be mild, with gentle showers; thus affording to vegetables an abundant supply of water, which is so indispensably necessary to their existence. The many thousand tribes of *vegetables* are not only formed from a few simple substances, but enjoy the same sun, vegetate in the same medium, and are supplied with the same nutriment.

Now spring the living herbs, profusely wild,  
 O'er all the deep-green earth, beyond the power  
 Of botanist to number up their tribes:  
 Whether he steal along the lonely dale,  
 In silent search; or through the forest rank,  
 With what the dull incurious weeds account,  
 Burst his blind way; or climb the mountain rock,  
 Fired by the nodding verdure of its brow;  
 With such a liberal hand has nature flung  
 Their seeds abroad; blown them about in winds;

Innumeros mixed them with the nursing mould,  
The moist'ning current, and prolific rain. THOMSON.

The arrival of the *swallow* about the middle of this month announces the approach of summer, and now all Nature assumes a more cheerful aspect. The swallow tribe is of all others the most inoffensive, harmless, entertaining, and social: all, except one species, attach themselves to our houses, amuse us with their migrations, songs, and marvellous agility.

There are four species of the *hirundines* that visit England; they arrive in the following order:—(1.) The chimney swallow (*hirundo rustica*) builds its nest generally in chimneys, in the inside, within a few feet of the top, or under the eaves of houses. (2.) The house martin (*hirundo urbica*), known by its white breast and black back, glossed with blue, visits us in great numbers. It builds under the eaves of houses, or close by the sides of the windows. (3.) The sand martin (*hirundo riparia*) is the smallest of our swallows, as well as the least numerous of them. It frequents the steep, sandy banks, in the neighbourhood of rivers, in the sides of which it makes deep holes, and places the nest at the end. (4.) The swift (*hirundo apus*) is the largest species, measuring nearly eight inches in length. These birds build their nests in lofty steeples and high towers, and sometimes under the arches of bridges. The following pretty lines on the winter retreat of the swallow are from the pen of Miss Charlotte Smith:—

Were you in Asia? O relate,  
If there your fabled sister's woes  
She seemed in sorrow to narrate;  
Or sings she but to celebrate  
Her nuptials with the rose?

I would inquire how journeying long  
The vast and pathless ocean o'er,  
You ply again those pinions strong,  
And come and build anew among  
The scenes you left before?

But if, as colder breezes blow  
 Prophetic of the waning year,  
 You hide, though none know when or how,  
 In the cliff's excavated brow,  
 And linger torpid here ;

Thus lost to life, what favouring dream  
 Bids you to happier hours awake,  
 And tells, that dancing in the beam,  
 The light gnat hovers o'er the stream,  
 The May-fly on the lake.

Or if, by instinct taught to know  
 Approaching dearth of insect food,  
 To isles and willowy aits you go,  
 And, crowding on the pliant bough,  
 Sink in the dimpling flood.

How learn ye, while the cold waves boom  
 Your deep and ouzy couch above,  
 The time when flowers of promise bloom,  
 And call you from your transient tomb,  
 To light, and life, and love.

Alas ! how little can be known,  
 Her sacred veil where Nature draws ;  
 Let baffled science humbly own,  
 Her mysteries understood alone  
 By HIM who gives her laws.

The next bird which appears is that sweet warbler, the *motacilla lusciniæ*, or nightingale. Although the nightingale is common in this country, it never visits the northern parts of our island, and is but seldom seen in the western counties of Devonshire and Cornwall, or in Wales ; though it annually visits Sweden. It leaves us sometime in the month of August, and makes its regular return in the beginning of April. In England, nightingales frequent thick hedges and low coppices, and generally conceal themselves in the middle of some leafy bush. They commence their song in the evening, and continue it the whole night. For many interesting particulars of the nightingale, as well as numerous poetical illustrations, see our last volume, p. 110 ; T. T. for 1816, p. 117 ; T. T. for 1815, p. 139 ; and T. T. for 1814, p. 99.



That beautiful little bird, the wryneck (*jynx torquilla*) makes its appearance about the middle of the month, preceding the *cuckoo* by a few days. The well-known cry of the *cuculus canorus* is heard soon after the wryneck, and ceases the latter end of June; its stay is short, the old cuckoos being said to quit this country the latter end of June.—See more of the cuckoo in our last volume, p. 113.

The other summer-birds of passage which arrive this month, make their appearance in the following order: the ring-ousel (*turdus torquatus*), the red-start (*motacilla phoenicurus*), frequenting old walls and ruinous edifices; the yellow wren (*motacilla trochilus*); the swift, already noticed; the whitethroat (*motacilla sylvia*); the grasshopper lark (*alauda trivialis*), the smallest of the lark kind; and, lastly, the willow-wren, which frequents hedges and shrubberies, and feeds on insects, in search of which it is continually running up and down small branches of trees. The house-wren destroys many pernicious insects. *Plovers' eggs* now come into season, and are exhibited in small baskets, laid in moss, in the shops of fishmongers and poulterers.

The tenants of the air are, in this month, busily employed in forming their temporary habitations, and in rearing and maintaining their offspring. What a delightful series of pictures does the author of 'The Seasons' exhibit in his 'Spring,' formed on the variety of circumstances attending 'the passion of the groves,' which escape the notice and attention of the most negligent eye. With him we see the gay troops begin to plume the painted wing, and try again the long-forgotten strain. The woods resound with lavish harmony. Attentive to the voice of love, we behold the glossy kind pour forth their little souls in courtship to their mates. Having formed connubial leagues, they retire to their respective haunts, and build their nests with inimitable skill. The parental cares now engage their attention; and with what

courage, and with what art, do they employ the varied stratagem, to divert from their tender progeny the rude foot that would molest them ! How sweetly, too, does the poet lament the barbarous art that deprives the soft tribes of liberty and boundless air ! How pathetically bemoan the misery of the nightingale, when, returning to her young with loaded bill, she finds a vacant nest, robbed by the hard hand of some unrelenting clown ! A few of these passages we cannot forbear to quote :—

The glossy kind  
Try every winning way inventive love  
Can dictate, and in courtship to their mates  
Pour forth their little souls.  
Connubial leagues agreed, to the deep woods  
They haste away, all as their fancy leads,  
Pleasure, or food, or secret safety prompts ;  
That Nature's great command may be obeyed,  
Nor all the sweet sensations they perceive  
Indulged in vain.

The patient dam assiduous sits,  
Not to be tempted from her tender task,  
Or by sharp hunger, or by smooth delight,  
Though the whole loosened Spring around her blows.  
Her sympathizing lover takes his stand  
High on th' opponent bank, and ceaseless sings  
The tedious time away ; or else supplies  
Her place a moment, while she sudden flits  
To pick the scanty meal. Th' appointed time  
With pious toil fulfilled, the callow young,  
Warmed and expanded into perfect life,  
Their brittle bondage break, and come to light,  
A helpless family, demanding food  
With constant clamour : O what passions then,  
What melting sentiments of kindly care,  
On the new parents seize ! Away they fly  
Affectionate, and undesiring bear  
The most delicious morsel to their young ;  
Which equally distributed, again  
The search begins.

Nor toil alone they scorn : exalting love,  
By the great Father of the Spring inspired,  
Gives instant courage to the fearful race,

And to the *simple* art. With stealthy wing,  
 Should some rude foot their woody haunts molest,  
 Amid a neighbouring bush they silent drop,  
 And whirring thence, as if alarmed, deceive  
 Th' unfeeling schoolboy. Hence, around the head  
 Of wandering swain, the white-winged plover wheels  
 Her sounding flight, and then directly on  
 In long excursion skims the level lawn,  
 To tempt him from her nest. The wild-duck, hence,  
 O'er the rough moss, and o'er the trackless waste  
 The heath-hen flutters, pious fraud! to lead  
 The hot pursuing spaniel far astray.

About the middle of this month, the bittern (*ardea stellaris*) makes a hollow *booming* noise during the night in the breeding season, from its swampy retreats. Towards the end of the month, the black-cap (*motacilla atricapilla*), called, in Norfolk, the mock-nightingale, begins its song.

The progress of vegetation is general and rapid in this month. The blossoms of trees present to the eye a most agreeable spectacle, particularly in those counties which abound with orchards. The black-thorn (*prunus spinosa*) is the first that puts forth its flowers; a host of others follow, among which may be named the ash (*fraxinus excelsior*), ground-ivy (*glecoma hederacea*), the box-tree (*buxus sempervirens*), the pear-tree (*pyrus communis*), the apricot, the peach, nectarine, the wild and garden cherry, and the plum; gooseberry and currant-trees; the hawthorn (*crataegus oxycantha*), the apple-tree (*pyrus malus sativus*), and the sycamore (*acer pseudo-platanus*). The elm (*ulmus campestris*), the beech (*fagus sylvatica*), and the larch (*pinus-larix rubra*), are now in full leaf.

Many and lovely are the flowers which are showered, in profusion, from the lap of April: among them may be named the jonquil, anemoné, ranunculus, polyanthus, and the crown-imperial.

Other flowers which adorn our fields, at this time, are the chequered daffodil (*fritillaria meleagris*); the primrose; the cowslip (*primula veris*); the

cuckoo flower (*cardamine pratensis*) ; and the harebell (*hyacinthus non scriptus*). The yellow star of Bethlehem (*ornithogalum luteum*) in woods ; the vernal squill (*scilla verna*) among maritime rocks ; and the wood sorrel (*oxalis acetosella*), are now in full flower.

The scenery of a *Forest* at the approach of Spring is thus beautifully depicted by Mr. GISBORNE :—

How swells the enraptured bosom, while the eye  
Wanders unsated with delight from shade  
To shade, from grove to thicket, from near groups  
To yon primeval woods with darkening sweep  
Retiring ; and with beauty sees the whole  
Kindle, and glow with renovated life !  
For now, at Spring's reanimating call,  
Each native of the forest, from the trunk  
Towering and huge down to the tangled bush,  
Its own peculiar character resumes.  
Chief of the sylvan realms, its verdant wreath  
With tender olive stained the *oak* protrudes,  
Proud of a sheltered monarch, proud to lend  
A chaplet still to British loyalty.  
Even yet with ruddy spoils from autumn won,  
Loaded, the *beech* its lengthened bud untwines.  
Its knotted bloom secured, the *ash* puts forth  
The winged leaf : the *hawthorn* wraps its boughs  
In snowy mantle : from the vivid greens  
That shine around, the *holly*, winter's pride,  
Recedes abashed : the *willow*, in yon vale,  
Its silver lining to the breeze upturns ;  
And rustling *aspens* shiver by the brook ;  
While the unsullied stream, from April showers  
Refined, each sparkling pebble shows that decks  
The bottom ; and each scaly habitant  
Quick glancing in the shallows, or, in quest  
Of plunder, slowly sailing in the deep.

Beneath the sylvan canopy, the ground  
Glitters with flowery dyes : the *primrose*, first  
In mossy dell return of Spring to greet :  
*Pilewort*, that o'er her roots of old renown  
Expands the radiance of her starry bloom :  
*Arum*, that in a mantling hood conceals  
Her sanguine club, and spreads her spotted leaf  
Armed with keen tortures for the unwary tongue :  
*Anemone*, now robed in virgin white,

Now blushing with faint crimson: fraudful *spurge*,  
 That seeks in beauty's garb her snares to hide,  
 In milky stream her poison veils, her stem  
 In ruddy mantle wraps, and from a zone  
 Of dusky foliage elevates more bright  
 Her crest of gold: *sorrel*<sup>1</sup>, that hangs her cups,  
 Ere their frail form and streaky veins decay,  
 O'er her pale verdure, till parental care  
 Inclines the shortening stems, and to the shade  
 Of closing leaves her infant race withdraws:  
*Orchis* with crowded pyramids the bank  
 Purpling; the *harebell*, as with grief deprest,  
 Bowing her fragrance: and the scentless plant,  
 That with the violet's borrowed form and hue  
 The unskilful wanderer in the grove deceives<sup>2</sup>.

Various kinds of insects are now seen 'sporting in the sun-beams,' and living their 'little hour.' The jumping spider (*aranea scenica*) is seen on garden walls; and the webs of other species of spiders are found on the bushes, palings, and outsides of houses. The *iulus terrestris* appears, and the death-watch (*termes pulsatorius*) beats early in the month. The wood-ant (*formica herculeana*) now begins to construct its large conical nest. The shell-snail comes out in troops; the stinging-fly (*conops calcitrans*) and the red-ant (*formica rubra*) appear. The mole cricket (*gryllus gryllotalpa*) is the most remarkable of the insect-tribe seen about this time. The black slug (*limax ater*) abounds at this season. The blue flesh-fly (*musca vomitoria*), and the dragon-fly (*libellula*), are frequently observed towards the end of the month. The great variegated *libellula* (*libellula varia* of Shaw), which appears, *principally*, towards the decline of summer, is an animal of singular beauty.

<sup>1</sup> Wood sorrel (*oxalis acetosa*, Lin.). This plant, as soon as its petals have fallen off, thrusts its seed-vessels, with a motion in appearance almost voluntary, under the contiguous leaves; the footstalk, which till then had been straight, bending itself back in a sharp angle, and thus bringing down its charge to the shelter provided by the Author of Nature.

<sup>2</sup> Walks in a Forest, pp. 6-9.

The cabbage butterfly also (*papilio brassicae*) now appears.

Trusting the first warm day of spring,  
When transient sunshine warms the sky,  
Light on his yellow spotted wing  
Comes forth the early *butterfly*.

With wavering flight, he settles now  
Where pilewort spreads its blossoms fair,  
Or on the grass where daisies blow,  
Pausing, he rests his pinions there.

But, insect! in a luckless hour  
Thou from thy winter home hast come,  
For yet is seen no luscious flower  
With odour rich, and honied bloom.

And these that to the early day  
Yet timidly their bells unfold,  
Close with the sun's retreating ray,  
And shut their humid eyes of gold.

For night's dark shades then gather round,  
And night-winds whistle cold and keen,  
And hoary frost will crisp the ground  
And blight the leaves of budding green!

And thou, poor fly! so soft and frail,  
May'st perish ere returning morn,  
Nor ever, on the summer gale,  
To taste of summer sweets be borne!

On the habits and food of *caterpillars* consult T. T. for 1816, p. 124; and our last volume, p. 119.

River fish leave their winter retreats, and again become the prey of the angler.

The river teems; swarming with finny tribes  
That brisk forsake the oozy depth below,  
And glittering sport upon the blue-faced stream,  
Or in the shallows cast their countless spawn.  
At wonted eve the nauseous *bat*, awaked

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<sup>1</sup> See *Conversations on Natural History*, by Charlotte Smith, vol. i, p. 52, a book which cannot be too strongly recommended to our juvenile readers of both sexes, but particularly to young females. See also the 'SWALLOW, an ELEGY,' in our last volume, p. 128.

By gentle breezes, now and then renews  
His fitting flight. The sluggish *snail* creeps slow  
To meet the twilight dew; and from the earth  
The naked *worm* trails out its slippery length.

BIDLAKE.

For the various employments of the 'Fisher Boy' in this month, and some lines descriptive of river fish, see our last volume, p. 121.

The spring flight of pigeons (*columbæ*) appears in this month, or early in the next.

Dry weather is still acceptable to the farmer, who is employed in sowing various kinds of grain, and seeds for fodder, as buck-wheat, lucerne, saintfoin, clover, &c. The young corn and springing-grass, however, are materially benefited by occasional showers.

In our last year's Diary for September, p. 282, we gave the pathetic poem of the humane Mr. PRATT, entitled, the 'Partridges, an Elegy;' as a companion to this, and as applicable to the present month, we now insert the 'ELEGY OF A NIGHTINGALE,' by the same elegant poet:—

For Elusino lost, renew the strain,  
Pour the sad note upon the ev'ning gale;  
And, as the length'ning shades usurp the plain,  
The silent moon shall listen to the tale.

Sore was the time—ill-fated was the hour,  
The thicket shook with many an omen dire!  
When from the topmost twig of yonder bow'r  
I saw my husband tremble and expire.

'Twas when the peasant sought his twilight rest,  
Beneath the brow of yonder breezy hill;

'Twas when the plummy nation sought the nest,  
And all, but such as loved the night, were still;

That—as I sat with all a lover's pride,  
(As was my custom when the sun withdrew)  
Dear Elusino sudden left my side,  
And the vile form of man appeared in view.

For sport the tube he levelled at our head,  
And, curious to behold more near my race,  
Low in the copse the artful robber laid,  
Explored our haunt, and thundered at the place.

Ingrateful wretch! he was our shepherd's son—  
The harmless good old tenant of yon cot! —  
That shepherd would not such a deed have done! —  
'Twas love to him that fixed us to this spot.

Oft, as at eve his homeward steps he bent,  
When the laborious task of day was o'er,  
Our mellowed warblings soothed him as he went,  
Till the charmed hind forgot that he was poor.

Ah! could not this thy gratitude inspire?  
Could not our gentle visitations please?  
Could not the blameless lessons of thy sire  
Restrain thy barb'rous hand from crimes like these?

Oh, cruel boy! thou tyrant of the plain!  
Couldst thou but see the sorrows thou hast made,  
Or didst thou know the virtues thou hast slain,  
And view the gloomy horrors of the shade:

Couldst thou—behold—my infant younglings lay,  
In the moss cradle, which our bills prepared;  
Babes as they were—the offspring of the day—  
Their wings defenceless, and their bosom bared:

Surely the mighty malice of thy kind,  
Thy pow'r to wrong, and readiness to kill,  
In common pity, to the parent's mind,  
Would cease the new-made father's blood to spill.

Haply—the time may come, when heav'n shall give  
To thee the troubles thou hast heaped on me;  
Haply—ere well thy babes begin to live,  
Death may present the dart of misery.

Just as the tender hope begins to rise,  
As the fond mother hugs her darling boy;  
As the big rapture trembles in the eyes,  
And the breast throbs with all a parent's joy;

Then may some midnight robber, skilled in guile,  
Resolved on plunder and on deeds of death,  
Thy fairy prospects, tender transports spoil,  
And to the knife resign thy children's breath!

In that sad moment shall thy savage heart  
Feel the keen anguish, desperate and wild;  
Conscience, forlorn, shall doubly point the smart  
And justice whisper—this is child for child.

'Rest of their sire—my babes, alas! must sigh—  
For grief obstructs the widow's anxious care;  
This wasted form—this ever-weeping eye,  
And the deep note of destitute despair;



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All load this bosom with a fraught so sore,  
 Scarce can I cater for their daily food !  
 Where'er I search—my husband searched before—  
 And soon—my nest will hold an orphan brood.

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## MAY.

MAY is so called from *Maia*, the mother of Mercury, to whom sacrifices were offered by the Romans on the first of this month; or, according to some, from respect to the senators and nobles of Rome, who were named *Majores*, as the following month was termed Junius, in honour of the youth of Rome. The Saxons called May *tri-milki*, because, in that month, they began to milk their kine three times in the day.

## Remarkable Days

In MAY 1818.

### 1.—MAY-DAY.

IN the north of England, May-Day still retains some of its antient sports. The young people of both sexes go out early in the morning of the 1st of May (observes Mr. Hutchinson) to gather the flowering thorns and the dew of the grass, which they bring home with music and acclamations; and having dressed a pole on the town-green with garlands, dance around it. The dew was considered as a grand cosmetic, and preserved the face from wrinkles and the traces of old age; the happiest gift Flora could bestow on her votaries.—See further on this subject in T. T. for 1815, p. 159.

### 1.—SAINT PHILIP AND SAINT JAMES THE LESS.

Philip was born at Bethsaida, near the sea of Tiberias, the city of Andrew and Peter. He was one of the first disciples, and an apostle. James the Less, called also *James the Just*, and, by the apostle Paul,

*James*, the Lord's brother, was the son of Joseph, afterwards husband to the Virgin Mary, as is probable by his first wife. The first of these martyrs was stoned to death, and the second, having been thrown from a high place, was killed by a fuller's staff.

\*1. 1807.—SLAVE TRADE ABOLISHED.

3.—INVENTION OF THE CROSS.

The Romish church celebrates this day as a festival, to commemorate the *invention* or finding of a wooden *cross*, supposed to be the *true one*, by *Helena*, the mother of Constantine the Great.

\*4. 1795.—ABBÉ BARTHELEMY DIED.

The celebrated author of '*Anacharsis's Travels in Greece*;' a general work on the history, manners, customs, literature, &c. of Greece, presented in the novel and elegant form of the supposed observations of a traveller, *Anacharsis*, an imagined descendant of the antient Scythian philosopher of that name. This person is represented as visiting Greece in the year 363 B.C., and fixing his residence in Athens, whence he makes excursions, not only to the other Grecian cities, but to Egypt, Asia Minor, Persia, and the islands of the *Ægean Sea*. Admitting this basis of fiction, every thing else is supported by the authority, exactly referred to, of antient writers. An infinite number of detached circumstances derived from them are digested into a lively and connected narrative, which, by the help of retrospects, is made to comprise every thing curious and important relative to a people, undoubtedly the most interesting in the history of mankind, down to the period fixed upon for the philosopher's travels, which is that of *Epaminondas*, *Phocion*, *Plato*, *Aristotle*, *Demosthenes*, and other men of extraordinary merit. The elegance of style, the beauties of narration, and the judiciousness of reflection, render this the first work, in point of entertainment and instruction, that so brilliant a subject has produced. It has added a capital piece

to the literary cabinet of Europe, and its value has already been recognised by various editions and translations into different languages. This unrivalled work was the labour of thirty years' incessant application.

6.—JOHN EVANGELIST, A.P.L.

John the Evangelist, so called from the Greek term *Εὐαγγέλιος* the messenger of glad tidings, was a Galilean by birth, the son of Zebedee and Salome, the younger brother of James, but not of him that was surnamed the Just, and who was the brother of our Lord. His brother James and he were surnamed by Jesus, the *Sons of Thunder*, meaning the principal ministers of the gospel, and John was more endeared to him than any of his disciples. He was condemned to be thrown into a cask of burning oil, Ante Port. Lat., before the gate of Latina; hence the letters added to his name. He lived to the reign of Trajan, and died about ninety years of age.

\*7. 1811.—RICHARD CUMBERLAND DIED.

The great mass of Cumberland's writings naturally suggests the idea that he was a rapid composer. This, he says, was true only in some particular instances, but not in general; and he gives an account of his mode of study, which is worth notice. 'The fact is, that every hour of the day is my hour for study, and that a minute rarely passes in which I am absolutely idle:—in short, I never do nothing—I never have been accustomed to retire to my study for silence and meditation:—what books I had to consult I brought down to the common sitting room, where I wrote in company with my wife and family, neither interrupting them, nor interrupted by them.' His '*Calvary*,' an heroic poem of eight books, which he completed at the rate of fifty lines a day, is now hastening to oblivion; and his fame as an author must be estimated from his dramas and novels, but chiefly from the volumes of the '*Observer*,' a collection of Essays, containing some interesting stories

and well-drawn pictures of life, and a series of remarks upon the antient Greek dramatists, as known by their fragments, which displays much classical learning and acquaintance with literary history, and several examples of elegant and happy translation.

His 'Memoirs' is a work of considerable entertainment; but is marked with the loquacity of age and the prolixity of a writer spinning out his volumes for profit. He was, indeed, we lament to say, after all his multiplied labours for the amusement and instruction of the public, in circumstances which obliged him to rely, even in his eightieth year, upon his pen for subsistence.

#### 10.—WHIT-SUNDAY.

On Whit-Sunday, or *White-Sunday*, the *catechumens*, who were then baptized, as well as those who had been baptized before at Easter, appeared, in the antient church, in *white garments*. The Greeks, for the same reason, call it *Bright Sunday*; on account of the number of bright white garments which were then worn. The name of this Sunday, in the old Latin church, was *Dominica in Albis*, as was the Sunday next after Easter, on the same occasion. On this day the Holy Ghost descended upon the apostles and other Christians, in the visible appearance of fiery tongues. The celebration of divine service in St. Peter's church at Rome, on Whitsunday, is described in T. T. for 1815, p. 165.

#### 11, 12.—WHIT-MONDAY and WHIT-TUESDAY.

These days are observed as festivals, for the same reason as Monday and Tuesday in Easter. Their religious character, however, is almost obsolete, and they are now kept as holidays, in which the lower classes still pursue their favourite diversions. For an account of the Eton *Montem*, see T. T. for 1815, p. 168.

The Whitsun Ales and other customs formerly observed at this season, are noticed in T. T. for 1814, pp. 119-120.

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**\*11. 1778.—LORD CHATHAM DIED.**

During the administration of this great man, Great Britain attained a height of prosperity and glory unknown to any former age. Added to his character of an able statesman, a virtuous man, and a true patriot, he was also a most accomplished orator; the music and majesty of his voice, the persuasive gracefulness and irresistible force of his action, and his power of eye, carried conviction with his argument, and formed a perfect combination of excellence.

**\*11. 1812.—MR. PERCEVAL ASSASSINATED.**

**\*13. 1809.—BISHOP PORTEUS DIED.**

He left behind him a justly-acquired reputation for propriety of conduct, benevolence to the clergy, and a strict attention to episcopal duties. As a preacher he obtained the character of an accomplished orator; his language was chaste, his manner always serious, animated and impressive, and his eloquence captivating. In private life, he was mild, affable, easy of access, irreproachable in his morals, of a cheerful disposition, and ever ready to listen to and relieve the distresses of his fellow-creatures. His 'Lectures on St. Matthew's Gospel,' delivered on Friday evenings during Lent, in St. James's Church, were attended by crowded congregations, including many of the first families and characters in the kingdom. The Sermons, Charges, and Tracts, are all extremely valuable. His poem entitled 'Death,' familiar to every reader, is characterized by extraordinary vigour, warm sensibility, genuine piety, and accurate taste. Besides building and endowing a chapel at Sundridge in Kent, and other benefactions, in his life-time, he bequeathed his noble library for the use of his successors in the see of London, together with a liberal sum towards the expense of erecting a building for its reception at the episcopal palace at Fulham.

## 17.—TRINITY SUNDAY.

Stephen, Bishop of Liege, first drew up an office in commemoration of the Holy Trinity, about the year 920 ; but the festival was not formally admitted into the Romish church till the fourteenth century, under the *pontificate* of John XXII.

## 19.—SAINT DUNSTAN.

Dunstan was a native of Glastonbury, and nobly descended ; Elphegus, Bishop of Winchester, and Athelm, Archbishop of Canterbury, being his uncles ; he was also related to King Athelstan. He was a skilful painter, musician, and an excellent forger and refiner of metals : he manufactured crosses, vials, and sacred vestments ; he also painted and copied good books.

Dunstan was promoted to the see of Worcester by King Edgar ; he was afterwards Bishop of London, and Archbishop of Canterbury. He died in 988, in the 64th year of his age, and in the 27th of his archiepiscopal dignity. His miracles are too commonly known to be repeated.

## 19.—QUEEN CHARLOTTE BORN.

Her present Majesty (Princess Charlotte of Mecklenburgh Strelitz) was born on the 19th of May, 1744 ; but her birthday is celebrated on the 18th of January.

## 21.—CORPUS CHRISTI.

This festival, ' the body of Christ,' was appointed in honour of the Eucharist, and always falls on the Thursday after Trinity Sunday. It is called the *Fête Dieu*, or Corpus Christi, and is one of the most remarkable festivals of the Romish church, beginning on Trinity Sunday, and ending on the Sunday following. The common mode of celebrating this festival is by grand masses, and processions of the holy sacrament only ; but at Aix, a most extraordinary procession was first introduced by King René, which continued till the year 1788 or 1789. It was renewed again in the year 1803, for the first time

since the Revolution, and is now regularly repeated every year. A part of the ceremony includes certain games and pastimes, intended as allegorical representations of the triumph of Christianity over Paganism; the whole consisting of an immense procession of the most extravagant masquerade characters, such as devils, men with pasteboard horses fastened round their waists, a figure of death painted like a skeleton, Moses, the Queen of Sheba, &c. &c. attended by the whole body of law-officers, clergy, civil magistrates, and a vast concourse of people. On the grand day of the procession, the streets are all strewn with fresh gravel, and the outsides of the houses hung with tapestry. As a prelude to the ceremony, a number of men, habited like devils, among whom are distinguished the great devil, and his wife the *devillesse*, their heads furnished with horns, and their bodies covered all over with rattles, which they are continually clattering, scour the streets and clear them of all obstructions. The distribution of the different parts is an affair of great consequence. A man, whom they refused to admit among the number of the devils, gained over his judges by the following repartee: '*My father has been a devil, my grandfather has been a devil; wherefore then should not I?*' For a full description of this strange ceremony, the various combats of the performers, and their whimsical costume, the reader may consult Miss Plumtre's '*Residence in France*,' vol. ii, p. 220.—See also T. T. for 1815, p. 172, for an account of other strange ceremonies on this day.

26.—AUGUSTIN, or *Austin*.

This *English apostle*, as he is termed, was commissioned by Pope Gregory the Great to convert the Saxons. He was created archbishop of Canterbury in 556, and died about the year 610.—See a fuller account of him in T. T. for 1815, p. 174.

27.—VENERABLE BEDE.

Bede was born at Yarrow in Northumberland, in

673. His grand work is the Ecclesiastical History of the Saxons. Bede has obtained the title of *Venerable*, for his profound learning and unaffected piety, and not on account of any celebrity for miraculous and angelic operations.

29.—KING CHARLES II RESTORED.

On the 8th of May, 1660, Charles II was *proclaimed* in London and Westminster, and afterwards throughout his dominions, with great joy and universal acclamations. On the 16th he came to the Hague; the 23d he embarked with his two brothers for England, and landed at Dover on the 25th, where he was received by General Monk, and some of the army. He was then attended by numbers of the nobility and gentry to Canterbury, and on the 29th he made his magnificent entry into London. This day is also his birthday.

In some parts of England it is customary for the common people to wear oak leaves, covered with leaf-gold, in their hats, in commemoration of the concealment of Charles II in an oak tree, after the battle of Worcester. To this tree, not far from Boscobel House, the king and his companion Colonel Careless resorted, when they thought it no longer safe to remain in the house; climbing up by the hen-roost ladder, and the family giving them victuals on a nut-hook. An account of the king's escape to France, extracted from his *own Narrative*, will be found in T. T. for 1815, p. 176.

\*MAY 1643.—LOUIS XIII DIED.

The character of this monarch manifested that propensity to be governed, which displays weakness of the heart, together with a coldness and indifference joined to a melancholy disposition, which rendered his attachments rather the effect of habit than of affection, and inspired all about him with weariness and disgust. One of his principal favourites said to a friend, 'How unhappy I am to live with a man



who wearies me from morning to night!' He was devout; but his devotion shewed itself in minute observances, and submission to his confessors. He had a share of judgment and solid sense, and did not want decision. For the administration of justice, he was inclined to rigour, and thence, perhaps, acquired the epithet of *the Just*; though some ascribe it only to the circumstance of his being born under the sign of the Balance.

\*MAY 1774.—LOUIS XV DIED.

During this reign, the arts and sciences made a great progress in France, which was aided by the munificence of the Court, as long as other demands did not anticipate the funds for this purpose. The voyages of the French mathematicians to the equatorial and polar regions, in order to measure a degree of the meridian, were equally honourable to the government and the persons employed. The king himself possessed much more information than his predecessor, and was well versed in historical and geographical studies. He was polite, affable, naturally mild and humane; but want of strength of character, and fondness for sensual indulgences, degraded him both as a sovereign and as a man.

## Astronomical Occurrences

In MAY 1818.

THE Sun enters Gemini at 48 m. after 5 in the afternoon of the 21st of May; and his rising and setting will take place as specified in the following

TABLE

*Of the Sun's Rising and Setting for every Fifth Day.*

Friday, May 1st,	Sun rises 37 m. after 4.	Sets 23 m. after 7.
Wednesday, 6th,	- - 29 - - 4.	- 31 - - 7
Monday, - 11th,	- - 20 - - 4.	- 40 - - 7
Saturday, - 16th,	- - 13 - - 4.	- 47 - - 7
Thursday, 21st,	- - 6 - - 4.	- 54 - - 7
Tuesday, - 26th,	- - 59 - - 3.	- 1 - - 8
Sunday, - 31st,	- - 54 - - 3.	- 6 - - 8

*Eclipse of the Sun.*

There will be a visible eclipse of the Sun on the 5th of this month; the several circumstances of which, as answering to the Royal Observatory, will be as follow, viz.

Beginning of the eclipse	-	57 $\frac{1}{2}$	m. after 5 morning
Visible conjunction	- - -	41 $\frac{1}{8}$	- - 6 - - -
Greatest obscuration	- - -	51	- - 6 - - -
End of the eclipse	- - -	46 $\frac{1}{2}$	- - 7 - - -
Digits eclipsed 4° 31' on the Sun's southern limb.			

*Equation of Time.*

If the quantities in the following table be taken from the time as indicated by a good sun-dial, the remainders will be the mean time at the several epochs, on every fifth day.

TABLE.

	m.	s.
May 1st, from the time by the dial subtract	3	2
6th, - - - - -	3	33
11th, - - - - -	9	53
16th, - - - - -	3	57
21st, - - - - -	3	43
26th, - - - - -	3	25
31st, - - - - -	2	49

*Phases of the Moon.*

New Moon, -	5th day, at 26 m. after	7 morning.
First Quarter, -	13th - - 8	11 forenoon.
Full Moon, -	20th - - 29	8 morning.
Last Quarter, -	26th - - 49	11 night.

*Passage of the Moon over the Meridian.*

The Moon will be on the first meridian at the following convenient times for observation, viz.

May 14th, at 27 m. after 7 in the evening.

15th, -	13	- - 8	- - - - -
16th, -	59	- - 8	- - - - -
17th, -	48	- - 9	- - - - -
18th, -	40	- - 10	- - - - -
19th, -	38	- - 11	- - - - -
25th, -	53	- - 4	morning.
26th, -	46	- - 5	- - - - -

*Eclipses of Jupiter's Satellites.*

The eclipses of Jupiter's 1st and 2d satellite during this month, will be as follow, viz.

## IMMERSIONS.

1st Satellite,	14th,	at 58 m. 25 s. past 1,	morning.
- - - -	30th,	14 - 48 - -	0, morning.
2d Satellite,	20th,	- 9 - 58 - -	1, morning.

*Other Phenomena.*

Mercury will be in his inferior conjunction at 45 m. after 2 in the morning of the 23d of May. The Moon and Mercury will be in conjunction at 32 m. after midnight of the 6th. Venus and Mercury will be in conjunction on the 11th; at which time Venus will be  $73\frac{1}{2}$  south of Mercury; and on the 12th, Mercury will be stationary.

*On the ROTATION of the SUN, MOON, and PLANETS,  
and the INCLINATION of their AXES, &c.*

Besides that motion of the planets by which they revolve round the Sun, in given periods of time, as the common centre of the system, it has been proved that most of them, like the earth, have another motion about their own axes; and analogy furnishes the strongest reason to believe that they *all* participate in this *rotary* motion. This was first established for the Sun, then for Jupiter, Mars and Venus, and afterwards for Saturn and Mercury: nor can it be reasonably doubted that the same rotation takes place with the other planets Uranus, Ceres, Pallas, Juno and Vesta; though their distance or their comparative smallness has hitherto prevented their rotary motion from being observed.

The general method by which these rotations are ascertained is to search for some remarkable point on the disc of the Sun or a planet; and then carefully to observe whether this point appears to be at rest or in motion, with respect to the apparent disc on which it is observed. If this point be stationary, or always

occupy the same place on the disc, except the small changes that may be produced by the relative motions of the earth and planet in their revolutions round the Sun, the planet can have no rotary motion, or at least a very slow one; but if the point rapidly change its position, there is not any other means of explaining the phenomenon but that of a *rotation* of the planet about its axis.

Of all these rotations, that of the Sun is the easiest to be ascertained, and the best determined. Its disc almost always presents spots visible with common astronomical telescopes. Their variable forms and dimensions, however, sometimes throw a shade of uncertainty over the accuracy of these observations.

The first discovery of these spots has been claimed by several astronomers. *Galileo* saw them in April 1611; *Scheiner*, in the following October; and *Fabricius* about the same time. These spots consist of dark and irregular parts; but whether they adhere to the Sun, or float on the ocean of that luminous matter which is supposed to surround the solid and obscure body of that luminary; whether they are scorix thrown up to the surface of the fluid; rocks or prominent parts, elevated above this ocean; whether they are below its level, and what is their nature; are questions which it is perhaps impossible to decide.

When one of these spots is in the middle of the disc, it is seen in its true shape; because there the surface is the least curved, and its central part perpendicular to the visual ray: but when the same spot by the rotary motion is brought near the margin of the apparent disc, it is seen more obliquely. Its breadth diminishes while its height remains the same. The form of the spots is not only irregular, but also variable. They are of different shades; their edges are ill defined and changeable; which renders it necessary to make the observations on the centres, and even these are not altogether free from change.

It is by means of proper observations of these spots, and the calculations founded upon them, that the elements of rotation are determined; that is, its duration, the position of the axis about which it is accomplished; that of the equator, its nodes, and its inclination to the ecliptic. The time of rotation may be found by observing the arc described by any spot in a given time, and then finding, by proportion, the time of describing the whole circle; or the return of the spot to the same position with respect to the earth may be observed, which will give the time of the entire rotation. But the most accurate method is to observe the difference of right ascension between the centre of the spot and the limb of the Sun, from which the difference of right ascension between the centre of the spot and that of the Sun is immediately obtained. The same observation made with respect to the declination gives the difference of declination between the centre of the spot and that of the Sun. These results fix the position of the spot upon the disc; and by repeating these observations several times during its appearance, its apparent course over the disc may be traced with considerable accuracy, provided the time of this appearance be of sufficient duration. From having the difference of right ascension and declination, the difference of latitude and longitude of the centres of the spot and the Sun is found by calculation.

Numerous observations, combined with all the circumstances connected with them, lead to the conclusion, that *the Sun has a rotary motion from east to west, about an axis inclined to the ecliptic*. A plane drawn through the centre of the Sun, perpendicular to that axis, determines the *solar equator* by its intersection with the surface of that body. The line formed by the intersection of this plane with that of the ecliptic is called the *line of the nodes* of that equator. The *nodes* themselves are the points in

which that right line, indefinitely produced both ways, would meet the celestial sphere.

To know the position of this axis of rotation, the angle of inclination of the solar equator with the ecliptic must be determined, as well as that which the line of the nodes makes with some other fixed line, supposed to be drawn in the plane of the ecliptic; that of the equinoxes is usually selected for this purpose. The angle is called the longitude of the node.

M. *Delambre*, after performing the necessary calculations with all the care and accuracy of which the subject admits, arrives at the following conclusions relative to the rotary elements of the Sun, viz.

Position of the node	- - - - -	2s. 20°	7'	4''
Inclination of the equator	- - - - -	- 7	19	23
Declination	- - - - -	- 5	23	16
Diurnal motion	- - - - -	- 14	23	38
Real rotation	- - - - -	- 25d.	0h.	17m.
Synodic rotation	- - - - -	- 26	4	17

By the result of another variety of combinations of the elements of calculation afforded by the observations he has considered, he makes the time of the real rotation of the Sun 25·01154 days, or 25 d. 0 h. 16 m.; a result extremely near the former. The delicacy of the observations, and the variation to which the spots are subject, are sufficient sources of error, however, to prevent implicit reliance being placed upon the above results.

The rotation of the *Moon* is much slower than that of the Sun; and it presents phenomena more singular: But the spots on her disc are permanent, which allows the observations to be multiplied indefinitely. By following nearly the same processes, both of observation and calculation, as for the Sun, it is found that the lunar equator is inclined to the ecliptic in an angle of 1° 43'; and as that of the orbit is about 5° 9', it follows that the orbit and the equator are inclined to

each other in an angle of  $3^{\circ} 26'$ ; and also, that the plane of the lunar equator is therefore between that of the orbit and ecliptic. The duration of the rotation is 27 d. 7 h. 43 m. 3 s., the same as the lunar month. The Moon, therefore, turning on its axis in the same time that it makes a revolution of  $360^{\circ}$  about the Earth by its mean motion, if her motion were uniform, and she always remained in the plane of the ecliptic, she would always present exactly the same face to us, and the spots on her disc would appear permanently fixed, as they would always be seen in exactly the same situation. But her motion in her orbit round the Earth is not uniform, and she is sometimes about  $5^{\circ}$  above the ecliptic, and at others as much below that circle; and therefore the spots on her surface appear to vary, their positions corresponding to the irregularity of her motions and the difference of her situations. These phenomena are denoted by the name *libration*, or balancing; and are again distinguished into libration in latitude and longitude; in right ascension and declination.

The same methods of ascertaining the elements of rotation of the Sun and Moon are also employed in finding those of the planets. *Mercury*, however, is so small and bright, that it is difficult to fix upon any point of his disc sufficiently distinct for making the requisite observations, and his nearness to the Sun also prevents these observations from being continued with the required regularity. Notwithstanding these difficulties, M. *Schroöter* has distinguished spots and mountains, which he has assiduously followed, till he has arrived at the subsequent conclusions: that the apparent diameter of the planet is about  $6''$ ; that it does not present any sensible ellipticity; that the mountains it contains are proportionally larger than those of Venus and the Earth; that the highest are, as in these two bodies, in the southern hemisphere; that the angle which the equator makes with its orbit is very considerable; that the difference of days and

seasons ought to be much greater in Mercury than it is on the Earth; that its atmosphere, like that of Venus, is very dense; and, lastly, that its rotation about its axis is 24 h. 5 m. 30 s.

The rotation of *Venus* is also very difficult to be observed. M. Schroëter, however, found her rotation to be 23 h. 21 m. 19s.; the inclination of her equator about  $75^\circ$ , and the longitude of the node  $10^\circ. 15'$ . He did not perceive any ellipticity. In fact, supposing it to be  $\frac{1}{100}$ , like that of the Earth, there would be only about the tenth of a second of difference between the two semiaxes, which it would be impossible to ascertain by observation. According to this astronomer, the atmosphere is sufficiently dense to produce a refraction of  $30' 24''$ .

*Cassini* found the rotation of *Mars* to be 24 h. 40 m.; the inclination of the equator appeared to him to be very small. *Maraldi* assigned 24 h. 39 m. for the rotation. *Herschel* gives 24 h. 39 m. 22 s.; the inclination of the equator to the ecliptic he makes  $30^\circ 18'$ ; and the node in  $2^\circ. 17' 47''$ . The ellipticity  $\frac{1}{16}$ .

The rotation of *Jupiter*, according to *Cassini* and *Maraldi*, is 9 h. 56 m.; according to Dr. *Herschel*, it is from 9 h. 51 m. 46 s. to 9 h. 56 m. 40 s. *Schroëter* makes it 9 h. 55 m. 33 s. He also supposes the inclination to be  $2^\circ$  or  $3^\circ$ , and the ellipticity  $\frac{1}{13}$ , which is sensible to the sight. But from the eclipses of his satellites, and the theory of Laplace, M. *Delambre* found the inclination equal to  $3^\circ 12' 24''$ , and the ellipticity about  $\frac{1}{13}$ th.

*Jupiter* is remarkable for two belts parallel to the equator: he has also four satellites which revolve about him, in planes very little inclined to his equator.

The rotation of *Saturn* has not been satisfactorily observed. Dr. *Herschel* thinks it is a little more than 10 h., and that the ellipticity of this planet is about  $\frac{1}{11}$ th. He also thinks that his greatest diameter is not



that of the equator, but that it is inclined to it in an angle of about  $46^{\circ}$ .

The most remarkable circumstance, however, which is peculiar to Saturn, is his being encompassed by a flat ring, resembling the wooden horizon of an artificial globe. This is, perhaps, one of the most curious objects which the invention of the telescope has presented to the view of the astronomer; and will therefore form a suitable subject for a separate article, in a subsequent part of this volume.

## The Naturalist's Diary

For MAY 1818.

Returning Spring,

Borne on the balmy zephyr's fragrant wing,  
Like a young beauteous bride from orient bowers,  
Sparkling with dewy gems and crowned with flowers;  
Hastes to her favourite Isle, and round her pours,  
In rich profusion, health's exhaustless stores.

MAY is usually considered as the most delightful month of the whole year, and has long been the Muse's favourite theme; although much that is said of its beauties applies better to more southern climates, or, indeed, to our month of JUNE, which is, commonly, entitled to all the praises that the poets have lavished upon MAY. This month, however, is remarkable for the profusion of verdure which it exhibits: nature's carpet is fresh laid, and nothing can be more grateful than to press its velvet surface.

The scenery of a May morning is, not unfrequently, as beautiful as possibly can be conceived; a serene sky, a refreshing fragrance arising from the face of the earth, and the melody of the feathered tribes, all combine to render it inexpressibly delightful, to exhilarate the spirits, and call forth a song of grateful adoration. Yet May, like its predecessor April, is often very changeful, and cold winds and a gloomy atmosphere have, of late, usurped the place

of a clear blue sky, and an enlivening sun. Unpromising as this revolution in our climate may appear to our limited views, we must still console ourselves with reflecting that we can never be sufficiently grateful for the thousand blessings that we still enjoy, and be contented to commit the care of the Seasons to HIM, who knows best how to rule them in his consummate wisdom.

Think of the poor Greenlander's dismal caves,  
When thro' their long long night they buried lie;  
Or the more wretched lands where hopeless slaves  
Toil hopelessly beneath the fervid sky.

In Britain, blest with peace and competence,  
Rich Fortune's favours could impart no more;  
Heaven's blessings equal happiness dispense,  
Believe my words, for I am old and poor!

Many who drudge in Labour's roughest ways,  
By whom life's simplest, lowliest walks are trod,  
Live happily to honoured length of days,  
Blessing kind Nature and kind Nature's God!

N. BLOOMFIELD.

The latest species of the summer birds of passage arrive about the beginning of this month. The goatsucker, or fern-owl (*caprimulgus Europæus*), makes its appearance only in the dusk of the evening, to search for prey, uttering a dull jarring noise. The spotted fly-catcher (*musci-capa grisola*), the most mute and familiar of all our summer birds, builds in a vine or sweet-briar, against the wall of a house, or on the end of a beam, and sometimes close to the post of a door. The sedge-bird (*motacilla salicaria*) is found in places where reeds and sedges grow, and builds its nest there, which is made of dried grass, tender fibres of plants, and lined with hair. It sings incessantly night and day, during the breeding time, and imitates, by turns, the notes of the sparrow, the skylark, and other birds, from which it is called the English mock-bird.

Innumerable songsters, in the freshening shade  
Of new-sprung leaves, their modulations mix  
Mellifluous.

The insect tribes continue to add to their numbers; among these may be named several kinds of moths and butterflies (*papilio atalanta*, *cardamines*, *ageria*, &c.) Other insects now observed, are field crickets (*gryllus campestris*), the chaffer or may-bug (*scarabæus melolontha*), and the forest-fly (*hippobosca equina*), which so much annoys horses and cattle. The female wasp (*vespa vulgaris*) appears at the latter end of the month.

The insect youth are on the wing,  
Eager to taste the bonied spring  
And float amid the liquid noon:  
Some lightly o'er the current skim,  
Some show their gaily gilded trim  
Quick glancing to the sun.

GRAY,

About this time, *bees* send forth their early swarms. Nothing can afford greater amusement than to watch the members of this industrious community in their daily journies from flower to flower.—See T. T. for 1816, p. 149; and for a list of trees, plants, and flowers, from which the bees extract their honey and wax, we refer to our last volume, p. 149.

Hark! round the hive the busy murmur rings,  
What crowds in frolic circles ply their wings!  
Reviving suns in glad commotion hail,  
And drink the freshness of the vernal gale!  
While these in spots their vacant raptures pour,  
Those wiser haunt the new-discovered flower;  
Each fragrant cell explore, each nectared fold,  
Glean the new wax, and load their thighs with gold.

About the commencement of the month, the flowers of the lily of the valley (*convallaria maialis*) and the flowers of the chesnut tree (*fagus castanea*) begin to open; the tulip tree (*liriodendron tulipifera*) has its leaves quite out, and the flowers of the oak (*quercus robur*), the Scotch fir (*pinus sylvestris*), the honeysuckle, and the beech, are in full bloom. Towards the middle, the flowers of the white thorn are quite out, and the mulberry tree (*morus nigra*) puts

forth its leaves; the walnut (*juglans regia*) has its flowers in full bloom; the flowers of the garden rose also begin to open<sup>1</sup>.

The lilac (*syringa vulgaris*), the barberry (*berberis vulgaris*), and the maple (*acer campestre*), are now in flower. At the latter end of the month, rye (*secale hybernium*) is in ear; the mountain ash (*sorbus aucuparia*), laburnum (*cytiscus laburnum*), the guelder rose (*viburnum opulus*), clover (*trifolium pratense*), columbines (*aquilegia vulgaris*), the alder (*rhamnus frangula*), the wild chervil (*chærophyllicum temulum*), and the wayfaring tree, or guelder-rose, have their flowers full blown. The germander (*veronica chamaedrys*) is seen in hedges, and various species of meadow grass are now in flower. Heart's-ease (*viola tricolor*) shows its interesting little flower in corn fields<sup>2</sup>. The butter-cup (*ranunculus bulbosus*) spreads over the meadows; the cole-seed (*brassica napus*) in corn-fields, bryony (*brionia dioica*), and the arum, or cuckoo-pint, in hedges, now show their flowers.

The female glow-worm (*lampyrus noctiluca*) is seen on dry banks, about woods, pastures, and hedge-

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<sup>1</sup> QUEEN of fragrance, lovely Rose,  
Thy soft and silken leaves disclose:  
The winter's past, the tempests fly,  
Soft gales breathe gently through the sky;  
The silver dews and genial showers  
Call forth a blooming waste of flowers;  
And, lo! thy beauties now uncloze,  
Queen of fragrance, lovely Rose!  
Yet, ah! how soon that bloom is flown!  
How soon thy blushing charms are gone!  
To-day thy crimson buds unveil,  
To-morrow scattered in the gale.  
Ah! human bliss as swiftly goes,  
And fades like thee, thou lovely Rose.

C. SMITH.

<sup>2</sup> For some pleasing poetical illustrations of this flower, see our last volume, p. 152.

ways, exhibiting, as soon as the dusk of the evening commences, the most vivid and beautiful phosphoric splendour, in form of a round spot of considerable size.

The *marine* plants which flower this month, and which are chiefly found on sea-shores and in the crevices of rocks, are, buck's horn (*plantago coronopus*), which flowers the whole summer; burnet saxifrage (*pimpinella dioica*), sea arrow-grass (*triglochin maritimum*) on muddy shores; the clammy lychnis (*lychnis viscaria*); the cerastium tetrandrum; scurvygrass (*cochlearia*), sea-kale (*crambe maritima*) on sandy shores; the sea-cabbage (*brassica oleracea*), the sea stork's bill (*erodium maritimum*), the slender bird's foot trefoil (*lotus diffusus*), the mountain fleawort (*cineraria integrifolia*) on chalky cliffs; and the sedge (*carex arenaria*) on sea-shores.

The leafing of trees, which is, usually, completed in May, takes place in the following order: (1) The willow, poplar, alder, and other aquatics; (2) The lime, sycamore, and horse-chesnut; (3) The oak, beech, ash, walnut, and mulberry; but the whole of the third number are not in full leaf till next month. Mr. Stillingfleet, in his Tracts (p. 142), gives the following as the order of the leafing of trees and shrubs, as observed by him in Norfolk: *January* 15, honeysuckle. *March* 11, gooseberry, currant, elder. *April* 1, birch, weeping-willow; 3, raspberry, bramble; 4, briar; 6, plum, apricot, peach; 7, filberd, sawallow, alder; 9, sycamore; 10, elm, quince; 11, marsh elder; 12, wych elm; 13, quicken tree, hornbeam; 14, apple tree; 16, abele, chesnut; 17, willow; 18, oak, lime; 19, maple; 21, walnut, plane, black poplar, beech, acacia robinia; 22, ash, carolina poplar. Some lines on *planting trees* may be seen in our last volume, p. 155. If the weather be warm, so that the sap will rise, oaks are felled and stripped of their bark for the tanner.

This is the season in which cheese is made; the counties most celebrated for this article are Cheshire, Wiltshire, and Gloucestershire.

The corn is benefited by a cold and windy May, as it is too apt to run into stalk, if the progress of vegetation be much accelerated by warm weather at this season. In late years, some sowing remains to be done; and in forward ones, the weeds should be well kept under.

We cannot refuse a place in our natural history of the pleasant month of May, to the following stanzas, written by the amiable author of the 'Farmer's Boy,' in his twentieth year:—

Hail, MAY! lovely MAY! how replenished my pails!

The young Dawn o'erspreads the broad east, streaked with gold!

My glad heart beats time to the laugh of the vales,  
And COLIN's voice rings through the wood from the fold.

The wood to the mountain submissively bands,

Whose blue misty summit first glows with the sun!

See! thence a gay train by the wild rill descends

To join the mixed sports:—Hark! the tumult's begun.

Be cloudless, ye skies!—And be COLIN but there;

Not dew-spangled bents on the wide-level dale,

No morning's first smile, can more lovely appear

Than his looks, since my wishes I cannot conceal.

Swift down the mad dance, while blest Health prompts to move,

We'll court joys to come, and exchange vows of truth;

And haply, when Age cools the transports of Love,

Decry, like good folks, the vain follies of youth.

To this pretty song we subjoin the 'Melodies of Morning and Evening,' from two admired poets, as forming a beautiful illustration of the scenery of May.

#### MELODIES of the MORNING.

But who the melodies of morn can tell?

The wild brook babbling down the mountain side;

The lowing herd; the sheepfold's simple bell;

The pipe of early shepherd dim described

In the lone valley; echoing far and wide

M

The clamorous horn along the cliffs above ;  
 The hollow murmur of the ocean tide ;  
 The hum of bees, and linnet's lay of love,  
 And the full choir that wakes the universal grove.

The cottage curs at early pilgrim bark ;  
 Crowned with her pail the tripping milkmaid sings ;  
 The whistling ploughman stalks afield ; and, hark !  
 Down the rough slope the ponderous waggon rings ;  
 Through rustling corn the hare astonished springs ;  
 Slow tolls the village-clock the drowsy hour ;  
 The partridge bursts away on whirring wings ;  
 Deep mourns the turtle in sequestered bower,  
 And shrill lark carols clear from her aerial tow'r.

BEATTIE.

#### MELODIES of the EVENING.

Sweet was the sound when oft, at evening's close,  
 Up yonder hill the village murmur rose ;  
 There, as I passed with careless steps and slow,  
 The mingling notes came softened from below ;  
 The swain responsive as the milkmaid sung,  
 The sober herd that lowed to meet their young,  
 The noisy geese that gabbled o'er the pool,  
 The playful children just let loose from school,  
 The watch-dog's voice that bayed the whispering wind,  
 And the loud laugh that spoke the vacant mind,  
 These all in sweet confusion sought the shade,  
 And filled each pause the nightingale had made.

GOLDSMITH.

## JUNE.

THE Saxons called June *weyd-monat*, because their beasts did then *weyd* or feed in the meadows.

## Remarkable Days

In JUNE 1818.

### 1. — NICOMEDE.

NICOMEDE was a pupil of St. Peter, and was discovered to be a Christian by his burying Felicula, a martyr, in a very honourable manner. He was beaten

to death with leaden plummets, on account of his religion, in the reign of Domitian.

\*1. 1803.—CAROLINE SYMMONS DIED, *ÆT.* 14!

This amiable young lady, when she was only eleven years old, displayed an astonishing brilliancy of invention and harmony of numbers, and may be fairly classed among the prodigies of early genius. The following beautiful lines, almost prophetic of her own melancholy fate, were written in her eleventh year :—

*On a BLIGHTED ROSE BUD.*

Scarce had thy velvet lips imbibed the dew,  
And nature hailed thee infant queen of May ;  
Scarce saw the opening bloom the sun's broad ray,  
And to the air its tender fragrance threw ;

When the north-wind enamoured of thee grew,  
And by his cold rude kiss thy charms decay :  
Now drops thy head, now fades thy blushing hue,  
No more the queen of flowers, no longer gay.

So blooms a maid, her guardian's health and joy ;  
Her mind arrayed in innocence's vest,  
When suddenly, impatient to destroy,  
Death clasps her vigour to his iron breast.  
She fades : the parent, sister, friend deplore,  
The charms and budding virtues now no more!

\*1. 1794.—VICTORY OF LORD HOWE.

4.—KING GEORGE III *born.*

5.—SAINT BONIFACE.

Boniface was a Saxon presbyter, born in England, and at first called Winfrid. He was sent as a missionary by Pope Gregory II into Germany, where he made so many converts, that he was distinguished by the title of the *German Apostle*. He was created Bishop of Mentz in the year 145. Boniface was one of the first priests of his day, and was also a great friend and admirer of the Venerable Bede. He was murdered in a barbarous manner by the populace near Utrecht, while preaching the Christian religion.

11.—SAINT BARNABAS.

Our saint's proper name was *Joses* ; he was de-



scended of the tribe of Levi, and born at Cyprus. His parents being rich, had him educated at Jerusalem, under the care of Gamaliel, a learned Jew; and, after his conversion, he preached the Gospel with Paul, in various countries, for fourteen years. Barnabas suffered martyrdom at Salamis, in his native island:—being shut up all night in the synagogue by some Jews, he was, the next morning, cruelly tortured, and afterwards stoned to death. The *Epistle* which he wrote is considered genuine, though not admitted into the canon of the church.

\*12. 1681.—WAT TYLER RIGGED.

The king passing along Smithfield, very slenderly guarded, met with Wat Tyler, at the head of the rioters, and entered into a conference with him. Tyler, having ordered his companions to retire till he should give them a signal, after which they were to murder all the company, except the king himself, whom they were to detain prisoner, feared not to come into the midst of the royal retinue. He there behaved himself in such a manner, that Wallworth, the Mayor of London, not able to bear his insolence, drew his sword, and struck him so violent a blow as brought him to the ground, where he was instantly dispatched by others of the king's attendants. The mutineers, seeing their leader fall, prepared themselves for revenge; and this whole company, with the king himself, had undoubtedly perished on the spot, had it not been for an extraordinary presence of mind which Richard discovered on the occasion. He ordered his company to stop; he advanced alone towards the enraged multitude; and, accosting them with an affable and intrepid countenance, he asked them—'What is the meaning of this disorder, my good people? Are ye angry that ye have lost your leader? I am your king: I will be your leader.' The populace, overawed by his presence, implicitly followed him: he led them into the fields, to prevent any disorder which might have arisen by their continuing in the

city : being there joined by Sir Robert Knolles, and a body of well armed veteran soldiers, who had been secretly drawn together, he strictly prohibited that officer from falling on the rioters, and committing an undistinguished slaughter upon them : and he peaceably dismissed them with the same charters which had been granted to their fellows. Soon after, the nobility and gentry, hearing of the king's danger, in which they were all involved, flocked to London with their adherents and retainers ; and Richard took the field at the head of an army 40,000 strong. It then behoved all the rebels to submit. The charters of enfranchisement and pardon were revoked by parliament ; the low people were reduced to the same slavish condition as before ; and several of the ringleaders were severely punished for the late disorders : some were even executed without process or form of law.

#### 17.—SAINT ALBAN.

St. Alban, the first Christian martyr in this island, suffered in 303. He was converted to Christianity by Amphialus, a priest of Caerleon in Monmouthshire, who, flying from persecution, was hospitably entertained by St. Alban, at Verulam, in Hertfordshire, now called, from him, St. Albans. Amphialus being closely pursued, made his escape, dressed in St. Alban's clothes. This, however, being soon discovered, exposed St. Alban to the fury of the Pagans ; and our saint refusing to perform the sacrifice to their gods, was first miserably tortured, and then put to death.

#### \*19. 1215.—MAGNA CHARTA SIGNED.

#### 20.—TRANSLATION OF EDWARD, *King of the West Saxons.*

Edward, being barbarously murdered by his mother-in-law, was first buried at Warham, without any solemnity ; but, after three years, was carried by Duke Alferus to the minster of Shrewsbury, and there interred with great pomp.

21.—LONGEST DAY.

This day is, in London, 16 h. 34 m. 5 s., allowing 9 m. 10 s. for refraction.

\*21. 1377.—RICHARD II BEGAN TO REIGN.

He was violent in his temper, profuse in his expenses, fond of idle show and magnificence, devoted to favourites, and addicted to pleasure; passions, all of them, the most inconsistent with a prudent economy, and consequently dangerous in a limited and mixed government. Had he possessed the talents of gaining, and, still more, of overawing his great barons, he might have escaped all the misfortunes of his reign, and been allowed to carry much further his oppressions over his people, if he really was guilty of any, without their daring to rebel or even murmur against him. But when the grandees were tempted, by his want of prudence and rigour, to resist his authority, and execute the most violent enterprises upon him, he was naturally led to seek for an opportunity of retaliation; justice was neglected; the lives of the chief nobility sacrificed; and all these evils seem to have proceeded more from a settled design of establishing arbitrary power, than from the insolence of victory, and the necessities of the king's situation.—*Hume*.

\*22. 1476.—BATTLE OF MORAT.

Not far from Morat, a considerable town of Switzerland, a celebrated battle was fought, in which the heroic Swiss nearly destroyed the entire army of Charles the Bold, Duke of Burgundy. On the high road, there was formerly a chapel filled with the bones of the Burgundian soldiers, who were slain at the siege of the town and in the battle. Lord Byron, who visited this spot in 1816, observes, 'The chapel is destroyed, and the pyramid of bones diminished to a small number by the Burgundian legion in the service of France, who anxiously effaced this record of their ancestors' less successful invasions. A few

still remain notwithstanding the pains taken by the Burgundians for ages (all who passed that way removing a bone to their own country), and the less justifiable larcenies of the Swiss postillions, who carried them off to sell for knife-handles, a purpose for which the whiteness imbibed by the bleaching of years had rendered them in great request. Of these relics I ventured to bring away as much as may have made the quarter of a hero; for which the sole excuse is, that, if I had not, the next passer-by might have perverted them to worse uses than the careful preservation which I intend for them.'

The following lines on this subject are from the 63d and 64th stanzas of the third canto of *Childe Harold*:

There is a spot should not be passed in vain,—  
 Morat! the proud, the patriot field! where man  
 May gaze on ghastly trophies of the slain,  
 Nor blush for those who conquered on that plain;  
 Here Burgundy bequeathed his tombless host,  
 A bony heap, through ages to remain,  
 Themselves their monument;—the Stygian coast  
 Unsepulchred they roamed, and shrieked each wandering ghost.

While Waterloo with Cannæ's carnage vies,  
 Morat and Marathon twin names shall stand;  
 They were true Glory's stainless victories,  
 Won by the unambitious heart and hand  
 Of a proud, brotherly, and civic band,  
 All unbought champions in no princely cause  
 Of vice-entailed Corruption; they no land  
 Doomed to bewail the blasphemy of laws  
 Making kings' rights divine, by some Draconic clause.

#### 24.—ST. JOHN THE BAPTIST, and MIDSUMMER DAY.

This festival is first noticed by Maximus Tauricensis, who lived about the year 400. According to Bourne, strange divinations were formerly used on the vigil of this day: 'Men and women were accustomed to gather together in the evening by the sea side, or in some certain houses, and there adorn a girl, who was her parent's first begotten child, after the manner of a bride. Then they feasted, and

leaped after the manner of bacchanals, and danced and shouted as they were wont to do on their holidays; after this they poured into a narrow-necked vessel some of the sea water, and put also into it certain things belonging to each of them; then, as if the devil gifted the girl with the faculty of telling future things, they would inquire with a loud voice about the good or evil fortune that should attend them: upon this the girl would take out of the vessel the first thing that came to hand, and show it, and give it to the owner, who, upon receiving it, was so foolish as to imagine himself wiser, as to the good or evil fortune that should attend him.'—See also T. T. for 1814, pp. 142-146; and our last volume, p. 164.

#### 29.—SAINT PETER.

Peter's original name, Simon, was not abolished by Christ, but that of *Cephas* was added to it, which, in Syriac, the vulgar language of the Jews, signifies a stone or rock; hence the Greek Πέτρος, and our *Peter*. The apostle's father was Jonah, probably a fisherman of Bethsaida. His brother Andrew, being first converted, was said to be an instrument of Peter's conversion, *John* i, 40, 41.

## Astronomical Occurrences

In JUNE 1818.

THE Sun enters Cancer at 25 m. past 2 in the morning of the 22d of this month; and his rising and setting for the same period will be as stated in the following

TABLE  
Of the Sun's Rising and Setting for every Fifth Day.

June 1st,	Sun rises	53 m. after 3.	Sets	7 m. after 8
6th,	- -	49 - - 3.	- 11 - -	8
11th,	- -	46 - - 3.	- 14 - -	8
16th,	- -	44 - - 3.	- 16 - -	8
21st,	- -	43 - - 3.	- 17 - -	8
26th,	- -	44 - - 3.	- 16 - -	8

*Equation of Time.*

When it is required to find mean or true time from apparent time, as marked on a good sun-dial, the quantities contained in the following table must be subtracted from or added to those given by the dial for every fifth day of the month. Find the quantities corresponding to the intermediate times by proportion.

TABLE.

	m.	s.
Monday, June 1st, from the time by the dial <i>subtract</i>	2	40
Saturday, - 6th, - - - - -	1	51
Thursday, - 11th, - - - - -	0	55
Tuesday, - 16th, to the time by the dial <i>add</i>	0	7
Sunday, - 21st, - - - - -	1	11
Friday, - 26th, - - - - -	2	15

*Phases of the Moon.*

New Moon, -	3d day, at 13 m. after 11 at night.
First Quarter, -	11th, - 51 - 10 - -
Full Moon, -	18th, - 23 - 3 afternoon.
Last Quarter, -	25th, - 46 - 10 morning.

*Moon's Passage over the Meridian.*

The Moon may be seen on the first meridian, if the weather be favourable, at the following suitable times for observation; viz.

June 14th, at 22 m. past	8 at night.
15th, - 16 - -	9 - - -
16th, - 14 - -	10 - - -
17th, - 17 - -	11 - - -
23d, - 31 - -	3 morning.
23d, - 23 - -	4 - - -
24th, - 10 - -	5 - - -

*Eclipses of Jupiter's Satellites.*

The eclipses of Jupiter's first and second satellites during this month will be as follow:—

## IMMERSIONS.

1st Satellite, 6th day, at 9 m. after 2 morning.

21st, - - 27 - - midnight.

29th, - - 21 - - 2 morning.

## EMERSION.

30th, - - 3 - - 11 night.

## IMMERSION.

2d Satellite, 20th, - - 43 - - midnight.

*Other Phenomena.*

Mercury will be stationary on the 4th, and attain his greatest elongation on the 17th; and Jupiter will be in opposition at 50 m. after 12 on the 30th. Saturn will be in quadrature at 45 m. after 10 in the morning of the 9th. Georgium Sidus will be in opposition at 30 m. after 5 in the morning of the 10th; and the Moon will be in conjunction with the star marked  $\alpha$  in Libra, at 36 m. after 6 in the evening of the 15th.

*On the ELEMENTS of the PLANETARY ORBITS.*

The orbits of the planets are curves, whose planes pass through the centre of the Sun; and hence each of these orbits intersect the ecliptic in two opposite points, which are called its *nodes*; these are situated in the same right line, passing through the centre of the Sun, and called the *line of the nodes*. The first element of the planetary orbits to be determined by the astronomer, is the situation of these nodes on the ecliptic, and consequently the position of this line. The most favourable times for determining this by observation, are when the planet has no latitude, and is in opposition to or conjunction with the Sun; for then an observer, situated at the centre of the Sun, would see the planet and the earth on the same right line.

The situations of the nodes being thus determined by observations of the kind above indicated, and the

necessary calculations founded upon them, this element is made the foundation of the method for ascertaining the inclination of the plane of the orbit to that of the ecliptic. When the Sun arrives at the node of the planet, or the longitude of the Sun becomes the same as that of the node, the geocentric latitude of the planet, at that moment, is computed from observations; and then a simple trigonometrical calculation will give the inclination of the planetary orbit.

This method, therefore, supposes the node of the planet to be previously and accurately known, and also that the astronomer is able to observe the planet in the whole of its course. It is, however, perhaps impossible to seize the exact moment when the Sun is in the node of the planet; but this difficulty is avoided by observing the two bodies for several days in succession, before and after the epoch of the Sun's passage through the node, and then determining the exact instant in which the phenomenon happened by interpolating the results. Besides, the error in the inclination which would result from a small error in the situation of the node would be so minute, as to be nearly, if not altogether, insensible.

The supposition of the astronomer being able to observe the planet in any part of its orbit, is only applicable to the seven old planets; for the new planets and comets this position and the nature of the curve must be determined from a small part of the orbit. This renders the problem of very difficult solution, and which is accomplished by applying to it the same laws, founded upon the principle of universal gravitation, which exist with respect to the other planetary bodies. The methods of accomplishing this have been explained, in all their generality, with great learning and ingenuity, by Laplace, in his *Mécanique Céleste*.

Neither the nodes of the planets, nor the inclination of their orbits, are absolutely fixed; for when



the positions of the nodes are determined at distant epochs of time, and referred to the ecliptic, they are found to have experienced variations, and to have a very slow retrograde motion. These variations, as well as those which take place in the inclination of the orbit, are denominated *secular inequalities*, and are necessary consequences of universal gravitation; which modern analysis not only establishes, but also furnishes the means of calculating their effects on the planetary motions.

When the position of the orbit is thus determined, the law of the planet's motion, and the nature of the curve it describes, are then the objects of research; and these would be known if the length of the radius vector and the angle it makes with a fixed right line situated in the plane of its orbit, and passing through the centre of the Sun, were assigned at every instant. The first object is therefore to ascertain the duration of one complete sidereal revolution of the planet; the most simple means of accomplishing this is, to observe two consecutive passages through the same node. This being found, the mean angular motions of the planet about the Sun are easily deduced, and the variations in its distance from the Sun determined. For these purposes, observations at the time of conjunctions and oppositions are favourable, as these take place in different points of their orbits. Thus a series of similar observations gives different angles and different radii vectors; and as these radii are known in terms of the radius of the solar orbit, and their true directions from the centre of the system ascertained, the figure of the planetary orbit becomes known.

The eccentricities of the planetary orbits experience very slow variations, both the law and extent of which have been determined by theory. The eccentricities of Mercury, Mars, and Jupiter increase, but those of all the other planets diminish.

The *Perihelia*, or the points of the planet's greatest

distance from the Sun, are not fixed; but have a slow motion in the plane of their orbits, in the same manner as the perigee of the solar orbit moves along the plane of the ecliptic. For all the planets, except Venus, these movements are direct, or in the same direction as that of the Sun; but for Venus this motion is retrograde. The observations relative to those small variations that can be depended upon, are still of too recent a date to give them with certainty: the theory of attraction is therefore the most accurate.

From a consideration of these principles, it may be perceived that the knowledge of the elliptical movement of each planet depends upon seven elements; and as there are eleven planets, seventy-seven elements must be determined in order to have a complete knowledge of our planetary system, in the present state of astronomy.

It would much exceed the limits, as well as be foreign to the nature, of the present work, to enter into a particular explanation of the methods, and give the formula which the improvements of modern analysis have established for ascertaining these several elements. We must therefore rest satisfied with giving the results that have been obtained by the most eminent astronomers, and refer the readers to their works for the methods by which they have been found.

We have already given the sidereal revolutions and mean distances of the planets from the Sun in our Occurrences for March, inserted in a preceding part of this volume; to which we must therefore refer for these elements. It is also necessary to remark, that the recent discovery of the four new telescopic planets, Ceres, Pallas, Vesta, and Juno, and the small number of observations that astronomers have yet been able to make upon them for the purpose, are not sufficient to determine their secular inequalities with the desirable accuracy: those which are given in the following tables must therefore be regarded as only approximations to the truth. The subsequent

results are extracted from Laplace's *Exposition du Système du Monde*.

*Eccentricities of the Planetary Orbits, at the Commencement of 1801, expressed in Parts of their semitransverse Axes.*

Mercury	- - - - -	0.205514
Venus	- - - - -	0.006853
The Earth	- - - - -	0.016853
Mars	- - - - -	0.093134
Ceres	- - - - -	0.078349
Pallas	- - - - -	0.245384
Vesta	- - - - -	0.254944
Juno	- - - - -	0.093220
Jupiter	- - - - -	0.048178
Saturn	- - - - -	0.056168
Uranus	- - - - -	0.046670

*Secular Variations to which the preceding Eccentricities are subject. The Sign — denotes Diminution.*

Mercury	- - - - -	0.000003867
Venus	- - - - -	— 0.000062711
The Earth	- - - - -	— 0.000041632
Mars	- - - - -	0.000090176
Ceres	} Not yet ascertained	
Pallas		
Vesta		
Juno		
Jupiter	- - - - -	0.000159350
Saturn	- - - - -	— 0.000312402
Uranus	- - - - -	— 0.000025072

*Longitudes of the Planets at the Commencement of 1801; reckoned from the Vernal Equinox.*

Mercury	- - - - -	163	56	27
Venus	- - - - -	10	44	35
The Earth	- - - - -	100	9	13
Mars	- - - - -	64	7	2
Ceres	- - - - -	264	45	5
Pallas	- - - - -	252	37	2
Vesta	- - - - -	290	30	52
Juno	- - - - -	267	25	1
Jupiter	- - - - -	102	12	36
Saturn	- - - - -	135	20	32
Uranus	- - - - -	177	47	12

*Longitudes of the Perihelia at the same Epoch.*

Mercury	-	-	-	-	-	-	-	-	74	21	47
Venus	-	-	-	-	-	-	-	-	128	37	1
The Earth	-	-	-	-	-	-	-	-	99	30	5
Mars	-	-	-	-	-	-	-	-	332	24	24
Ceres	-	-	-	-	-	-	-	-	146	39	38
Pallas	-	-	-	-	-	-	-	-	121	14	1
Vesta	-	-	-	-	-	-	-	-	53	18	41
Juno	-	-	-	-	-	-	-	-	249	43	0
Jupiter	-	-	-	-	-	-	-	-	11	8	3
Saturn	-	-	-	-	-	-	-	-	88	8	58
Uranus	-	-	-	-	-	-	-	-	167	21	42

*Sidereal and secular Motion of the Perihelia. The negative Sign indicates a retrograde Motion.*

Mercury	-	-	-	-	-	-	-	-	583	56
Venus	-	-	-	-	-	-	-	-	267	83
The Earth	-	-	-	-	-	-	-	-	1179	81
Mars	-	-	-	-	-	-	-	-	1582	43
Jupiter	-	-	-	-	-	-	-	-	663	86
Saturn	-	-	-	-	-	-	-	-	1937	07
Uranus	-	-	-	-	-	-	-	-	239	34

*Inclination of the Planetary Orbits to the Ecliptic, at the Commencement of 1801.*

Mercury	-	-	-	-	-	-	-	-	7	0	9
Venus	-	-	-	-	-	-	-	-	3	23	35
The Earth	-	-	-	-	-	-	-	-	0	0	0
Mars	-	-	-	-	-	-	-	-	1	51	0
Ceres	-	-	-	-	-	-	-	-	10	37	31
Pallas	-	-	-	-	-	-	-	-	34	37	29
Vesta	-	-	-	-	-	-	-	-	13	4	27
Juno	-	-	-	-	-	-	-	-	7	7	51
Jupiter	-	-	-	-	-	-	-	-	1	18	52
Saturn	-	-	-	-	-	-	-	-	2	29	38
Uranus	-	-	-	-	-	-	-	-	0	46	25

The above inclinations of the four new planets are those determined by M. Gauss, of Gottingen, and are the means of a great number of results.

*Secular Variation in the Inclination to the Ecliptic. The negative Sign indicates as before.*

Mercury	-	-	-	-	-	-	-	-	-	18°18
Venus	-	-	-	-	-	-	-	-	-	4°55
The Earth	-	-	-	-	-	-	-	-	-	0°00
Mars	-	-	-	-	-	-	-	-	-	0°15
Jupiter	-	-	-	-	-	-	-	-	-	22°61
Saturn	-	-	-	-	-	-	-	-	-	15°51
Uranus	-	-	-	-	-	-	-	-	-	3°13

*Longitude of the ascending Node, at the Commencement of 1801.*

Mercury	-	-	-	-	-	-	-	°	45	57	31
Venus	-	-	-	-	-	-	-	74	52	40	
The Earth	-	-	-	-	-	-	-	0	0	0	
Mars	-	-	-	-	-	-	-	48	1	28	
Ceres	-	-	-	-	-	-	-	80	53	41	
Pallas	-	-	-	-	-	-	-	172	28	13	
Vesta	-	-	-	-	-	-	-	103	10	41	
Juno	-	-	-	-	-	-	-	171	9	13	
Jupiter	-	-	-	-	-	-	-	98	25	34	
Saturn	-	-	-	-	-	-	-	111	55	47	
Uranus	-	-	-	-	-	-	-	72	51	14	

The above elements of the new planets were determined by M. Gauss.

*Sidereal and secular Motion of the Node on the Ecliptic, the Sign — being used as before.*

Mercury	-	-	-	-	-	-	-	—	782°27
Venus	-	-	-	-	-	-	-	—	1869°80
The Earth	-	-	-	-	-	-	-	—	0°00
Mars	-	-	-	-	-	-	-	—	2328°47
Jupiter	-	-	-	-	-	-	-	—	1577°57
Saturn	-	-	-	-	-	-	-	—	2266°46
Uranus	-	-	-	-	-	-	-	—	3597°96

## The Naturalist's Diary

For JUNE 1818.

Short is the reign of night, and almost blends  
The evening twilight with the morning dawn.

WARM weather is generally established in June, yet the heat is rarely excessive:—showers of rain

are very acceptable at the commencement of the month, as they tend to promote the growth of the young herbage. The innumerable beautiful herbs and flowers which, at this season of the year, meet our eye in every direction, appear designed only to ornament our earth, or to gratify our sense of smelling; but, upon a more intimate acquaintance with their peculiar properties and operations, we find, that, while they contribute to embellish our gardens, they also promote the purification and renovation of the atmosphere, which becomes contaminated from various causes.

The fields of clover (*trifolium pratense*), which are now in blossom, produce a delightful fragrance. Of this plant there are two varieties, the white and the purple; from the latter, the bees extract much honey. The bean blossoms also shed a still more exquisite odour.

Among the insect tribe, one of the most interesting is, in its perfect state, the angler's may-fly (*ephemera vulgata*), which appears about the 4th, and continues nearly a fortnight. It emerges from the water, where it passes its aurelia state, about six in the evening, and dies about eleven at night.

Poor Insect! what a little day  
Of passing bliss is thine;  
And yet you spread your feathers gay,  
And bid them, spreading, shine.

A trout shall lay thy beauty low,  
Or this same evening be  
The signal of thy overthrow,  
Thy term of destiny.

Then spread thy little shining wing,  
Hum on thy busy lay!  
For man, like thee, has but his Spring,  
Like thine it fades away<sup>1</sup>.

Among the most remarkable of the insect tribe

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<sup>1</sup> See Transmigration and other Poems, p. 40.

that appear in this month may be named the grasshopper (*gryllus*), the golden-green beetle (*scarabæus auratus*), various kinds of flies; the cuckoo-spit insect (*cicada spumaria*), and the stag-beetle (*lucanus cervus*). The several species of the gad-fly (*æstrus bovis—equi—and ovis*), the ox, horse, and sheep gad-fly make their appearance in this month. When attacked by this insect, cattle endeavour to escape their tormentor, by taking refuge in the nearest pond; it being observed that the gad-fly rarely attacks them when standing in the water.

About the beginning of this month, the pimpernel (*anagallis arvensis*), thyme (*thymus serpyllum*), the bitter sweet nightshade (*solanum dulcamara*), white bryony, the dog-rose (*rosa canina*), and the poppy (*papaver somniferum*), have their flowers full blown. The poppy (says Cowley) is scattered over the fields of corn, that all the needs of man may be easily satisfied, and that bread and sleep may be found together.

The fern-owl may be seen, in the evening, among the branches of oaks, in pursuit of its favourite repast, the fern-chaffer (*scarabæus solstitialis*).

The several kinds of corn come into ear and flower during this month, as well as most of the numerous species of *grasses*. Few common observers are at all aware that there are many distinct sorts of grasses; they see that there are daisies, butter-cups, clover, and several other flowering plants amongst the grass; but as for the *grass itself*, they consider it one uniform vegetable production, which, growing more or less luxuriantly in rich or in poor soils, is the source of all the differences between one pasture and another. The fact, however, is, that besides the leaves of the daisy, the butter-cup, and clover, with a variety of other plants usually found in all pasture land, there are above an hundred sorts of grass growing in different situations in this kingdom. Some of these are not proper food for any kind of cattle; some are

even injurious, while others are eaten with avidity by some animals, and not touched by others.

The sagacity of sheep in the choice of their food, both with respect to what is salutary, and even medicinal, is thus remarked by the poet :—

Driv'n oft from nature's path by artful man,  
Who blindly turns aside with haughty hand,  
Whom sacred instinct would securely lead,  
By their All-perfect Master inly taught,  
They best their food and physic can discern ;  
For He, Supreme Existence, ever near,  
Informs them. O'er the vivid green observe  
With what a regular consent they crop,  
At every fourth collection to the mouth,  
Unsavoury *crow-flower* ; whether to awake  
Languor of appetite with lively change,  
Or timely to repel approaching ill,  
Hard to determine.

DYER.

Most of the vegetables known under the common name of grass have three stamina and two pistilla, and are therefore in the class *triandria*, and order *digynia*. The anthers are seen shaking in the air, when the plants are in full flower ; and as there are many flowers on the same stalk, forming a spike, or panicle, they afford many seeds. The seeds of the different species are now cultivated separately for sale by a few seedsmen, and their peculiar properties are beginning to be discovered. Much, however, yet remains to be done, and a fine field is here open to the intelligent experimental farmer.

Some of the grasses are only to be cultivated by slips, or by dividing the roots. And all the grasses possess this invaluable property, given them with the wisest and kindest intentions, that the more their leaves which form the herbage are cropped, or eaten off, the more do the roots multiply and spread, until the surface of the ground is completely covered with a thick carpet of matted roots and their leaves.

The wonderful diffusion of the grasses, and the care which Nature has shown in their preservation, call for our warmest gratitude to the Divine Bestower



of all good. In almost every climate there is herbage of some kind; some of the grasses are found to grow even in the deserts of Africa; and others spring up, ripen, and shed their seeds, in the short summer of Lapland. The severest winters in this country do not kill these useful roots, nor do the cattle, that live upon their green leaves, ever eat the stalks which bear the flowers and the seeds. No set of plants are more useful in furnishing food, both fresh and dry, in summer and in winter, for innumerable animals and insects, than the order of the grasses; and none is more universally diffused over the whole face of the globe, or more carefully preserved by Nature, and their propagation insured<sup>1</sup>.

Gooseberries, currants, and strawberries, now begin to ripen. The hay harvest commences about the end of the month, in the southern and midland parts of the kingdom. About this time, also, birds cease their notes. No birds are heard after the end of June, except the stone curlew (*charadrius ædicnemus*) whistling late at night; the yellow hammer, goldfinch, and golden-crested wren, now and then chirping. The cuckoo's note also ceases.

The rural employment of *sheep-shearing* commences sometimes early in June, but, at others, not till the middle of the month; the time being regulated by the warmth and settled state of the weather. In many parts of the country, the depriving sheep of their wool is conducted with much ceremony and rural dignity.

The following plants are generally seen in flower about the end of June; goats-beard (*tragopogon pratense*), deadly nightshade (*atropa belladonna*), meadow-sweet (*spiræa ulmaria*), the day-lily (*hemerocallis flava*), the jasmine (*jasminum officinale*), and the holy-oak (*alcea rosea*).

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<sup>1</sup> See Skrimshire's *Essays on Natural History*, p. 168; and Curtis on Grasses, 8vo.

The rose is one of the greatest ornaments of our garden in this month, yet like the rest of its sister tribe, and that beauty of which it is so often mentioned as an emblem, quickly hastens to decay.

Like to the rose I count the virgin pure,  
 That grow'th on native stem in garden faire,  
 Which while it stands with walls environed sure,  
 Where herdsmen with their herds cannot repaire  
 To favor it, it seemeth to allure  
 The morning dewe, the heate, the earthe, the aire :  
 Young gallant men, and lovely dames, delight  
 In their sweet scent, and in their pleasing sight.  
 But when at once 'tis gathered and gone,  
 From proper stalke, where late before it grew,  
 The love, the liking little is or none ;  
 Both favor, grace, and beautie, all adieu !

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ARIOSTO, BY HARRINGTON.

Some persons are so fond of odoriferous plants and flowers, as to have them in their bedchamber. This, however, is a dangerous practice, many of them being so powerful as to overcome the senses entirely. Even plants that are not in flower, and have no smell, yet injure the air during the night, and in the absence of the sun, by impregnating it with nitrogen and carbonic acid gas; although in the daylight they rather improve the atmosphere, by yielding oxygen gas.

Mackerel (*scomber*, *scomber*) are taken in great abundance in this month. Such is sometimes the profusion of this fish, that a single boat has been known to take 120,000. The price on the spot, to those who purchased them for sale, was half a guinea per thousand.

The maritime plants which flower this month, are; the sea-barley (*hordeum maritimum*), sulphur-wort (*pucedanum officinale*), and loose sedge (*carex distans*), in salt marshes; the sea-plantain (*plantago maritima*), among rocks on the sea-coast; the slender-leaved buffonia (*buffonia tenuifolia*), and the tassel

pond-weed (*ruppia maritima*), in salt water ditches. To these may be added, the common alkanet (*anchusa officinalis*), the narrow-leaved pepperwort (*lepidum ruderale*), and the Roman nettle (*urtica pilulifera*), in sea wastes; the black salt-wort (*glaux maritima*), on muddy shores; the sea-chickweed (*arenaria peploides*), and the common sea-rocket (*bunias cakile*), on sandy shores; and the perfoliate cabbage (*brassica orientalis*) among maritime rocks.

The innumerable species of *insects* that are called into life by the heat in this month, afford a never failing source of amusement and instruction to the admirer of Nature's minutest works. Many of these are only discoverable by the *microscope*, and are eminently worthy of our observation.

How sweet to muse upon His skill displayed  
(Infinite skill!) in all that he has made;  
To trace in Nature's most minute design  
The signature and stamp of Power Divine;  
Contrivance exquisite expressed with ease,  
Where unassisted sight no beauty sees;  
The shapely limb and lubricated joint  
Within the small dimensions of a point;  
Muscle and nerve miraculously spun,  
His mighty work who speaks, and it is done:  
Th' invisible in things scarce seen revealed;  
To whom an atom is an ample field!

COWPER.

In a word, the microscope endows us, as it were, with a new sense; unfolds the amazing operations of Nature, and displays to us wonders unimagined by former ages.

Who, a thousand years ago, would have thought it possible to distinguish myriads of living creatures in a single drop of water? That the purple tide of life, and even the globules of the blood, should be seen distinctly, rolling through veins and arteries, smaller than the finest hair? That not only the exterior form, but even the internal structure and the motion of the fluids in a gnat, should be rendered visible? Or, that numberless species of creatures should be

made objects of vision, though so minute, that a million of them are less than a grain of sand?

These are noble discoveries, on which a new philosophy has been raised; that enlarges the capacity of the human understanding, and affords more sublime and just ideas than mankind had before, of the infinite power, wisdom, and goodness, of the Great Creator.

It was an observation of the excellent Mr. Boyle, 'that his wonder dwelt not so much on Nature's clocks as on her watches.' And, indeed, if we compare the structure of an elephant with that of a mite, we shall perceive the justness of his remark. With whatever degree of surprise, or even of terror, we may at first consider the huge bulk and prodigious strength of the elephant, we shall find our astonishment still greater, if we attentively examine the minute parts of the mite: for the latter has more limbs than the elephant; each of them furnished with veins and arteries, nerves, muscles, tendons, and bones: it has eyes, a mouth, and a proboscis too (as well as the elephant) to take in its nourishment: a heart to propel the circulation of the blood, a brain to supply nerves in every part, and other organs as perfect as in the largest animal. Now, if the extreme minuteness of these parts is not merely surprising, but far above our utmost conception, what shall we say to those various species of animalcules to which the mite itself, in size, is, as it were, an elephant?

Inconceivable as it may appear, it is yet a fact, that a mite upon a cheese is as large and considerable, in proportion, as a man upon the earth. The little insects that feed upon the leaves of peach-trees are no inappropriate representation of oxen grazing in large pastures; and the animalcules in a drop of water swim about with as much freedom as whales do in an ocean. They have all equal room in proportion to their bulk.

Not power alone confessed in grandeur lies,  
The glittering planet, or the painted skies;

Equal the *elephant's* or *emmet's* dress,  
 The wisdom of Omnipotence confess;  
 Equal the cumbrous *whale's* enormous mass,  
 With the small insect in the crowded grass;  
 The *mite* that gambols in its acid sea,  
 In shape a *porpoise*, tho' a speck to thee!

BOYSE,

## JULY.

THIS word is derived from the Latin *Julius*, the surname of C. Cæsar, the dictator, who was born in it. Mark Anthony first gave to this month the name of July, which was before called *Quintilis*, as being the fifth month in the year, in the old Roman calendar established by Romulus. July was called by the Saxons *heu-monat*, or *hey-monat*, because therein they usually mowed, and made their hay-harvest.

## Remarkable Days

In JULY 1818.

### 2.—VISITATION OF THE BLESSED VIRGIN MARY.

THIS festival was first instituted by Pope Urban VI, in commemoration of that remarkable journey which the Mother of our Lord took into the mountains of Judæa, in order to visit the mother of St. John the Baptist. It was afterwards confirmed, not only by a decree of Pope Boniface IX, but by the council of Basil, in 1441.

### 3.—DOG-DAYS BEGIN.

These are a certain number of days before and after the heliacal rising of *Camicula*, or the dog-star, in the morning. The dog-days in our modern Almanacks occupy the time from July 3d to August 11th; the name being applied now, as it was formerly, to the hottest time of the year.

### 4.—TRANSLATION OF ST. MARTIN.

This day was appointed to commemorate the re-

moval or translation of St. Martin's body from one tomb to another much more noble and magnificent; an honour conferred upon the deceased saint by Perpetuus, one of his successors in the see of Tours. His festival is celebrated on the 11th of November, which see.

\*5. 1816.—DR. WATSON, BISHOP OF LANDAFF, DIED.

Dr. Watson was long known to the world as a theologian, a chemist, an agriculturist, and a man of letters; but the only tribute yet paid to his memory has lately appeared in the very interesting volume, entitled 'Annual Biography and Obituary for 1817,' from which we glean some particulars. He pursued with ardour the favourite study of chemistry, and the five volumes of his 'Chemical Essays' are an evidence of his success in this pleasing but boundless field of science. At length, by the influence of the Duke of Rutland, to whom this work was inscribed, he obtained a *misere*. From that moment he seems to have abandoned his once favourite pursuit, as will be seen from the following quotation from the preface to his fifth and last volume.

'When I was elected Professor of Divinity in 1771, I determined to abandon, for ever, the study of chemistry, and I did abandon it for several years; but the *veteris vestigia flammæ* still continued to delight me, and at length seduced me from my purpose. When I was made a Bishop, in 1782, I again determined to quit my favourite pursuit: the volume which I now offer to the public is a sad proof of the imbecility of my resolution. I have on this day, however, offered a sacrifice to other people's notions, I confess, rather than to my own opinion of *episcopal decorum*—I have destroyed all my chemical manuscripts.—A prospect of returning health might have persuaded me to pursue this delightful science; but I have now certainly done with it for ever; at least, I have taken the most effectual step I could to wean myself from an attachment to it; for, with the holy

zeal of the idolators of old, who had been addicted to curious arts, *I have burned my books.*'

His lordship's 'Collection of Theological Tracts,' in 6 vols. 8vo, now become scarce, is an invaluable treasure to the student in divinity; while his 'Apology for Christianity,' in answer to Gibbon; and his 'Apology for the Bible,' in reply to 'Paine's Age of Reason,' have been perused by all classes with delight and profit. The latter of these two works has been widely disseminated, and, no doubt, productive of the happiest effects. The author of the 'Pursuits of Literature' thus notices the Bishop's admirable refutation of Paine's work:—

Yet all shall read, when, bold in strength divine,  
Prelatic virtue guards the Christian shrine,  
Pleased from the pomp of science to descend,  
And teach the people as their hallowed friend;  
In gentle warnings to the unsettled breast,  
In all its wand'rings from the realms of rest,  
From impious scoffs and ribaldry to turn,  
And Reason's Age by reason's light discern;  
Reflex insulted truth with tempered zeal,  
And feel that joy which WATSON best can feel.

The character of Bishop Watson is thus ably portrayed by a recent biographer. 'As a divine, he must be allowed to have been orthodox; for although a friend to reform, he broached no new tenets, but was a vigorous, able, and zealous supporter of the established church. In his person, he was tall, stout, muscular, and dignified. As a bishop, he was always the patron of unfriended merit, and added dignity to the bench, by his learning, his intelligence, his ability, and his independence. As an orator, his action was graceful, his voice harmonious, and his delivery both chaste and correct. As a writer, he displayed a great knowledge of composition; his style was neat, and even elegant, while his diction was pure and argumentative. But it is as a controversial writer that he is entitled to great, deserved, and undiminished praise. In all his contests, he made use of the language befitting a scholar and a gentle-

man ; and he both detested, and scorned to imitate, the vituperative attacks of those who, by recurring to scurrility and personality, forget the first duty of a Christian divine.'—(*Annual Biography and Obituary for 1817*, p. 440.)

\*6. 1813.—GRANVILLE SHARP DIED.

Granville Sharp first became known as a philanthropist by the remarkable case of *Somerset*, a poor negro. This person having been brought from the West Indies by his master, on falling into a bad state of health was abandoned by him, and turned into the streets of London. Mr. Sharp, struck with his deplorable condition, caused him to be admitted into St. Bartholomew's Hospital, attended personally to his wants, and, after his cure, provided him with a respectable service. His inhuman master, finding him in this situation, seized upon him as his property, and committed him to prison as a runaway slave. The poor negro made his case known to his former benefactor, who instantly applied to the Lord Mayor, by whom the parties were summoned before him. On hearing the cause, the magistrate pronounced *Somerset* perfectly free ; but the master, immediately seizing him by the collar, insisted upon keeping him. Mr. Sharp claimed the protection of the English law for the slave, instituted a prosecution against the master for an assault, and in fine, after various legal proceedings, supported by him with the most determined spirit, the twelve judges unanimously concurred in an opinion that the master had acted criminally ; and thus by Mr. Sharp's means the state of slavery was for ever banished from Great Britain.

Such an incident as that we have just related could not fail deeply to impress a benevolent mind, and slavery in every shape became the object of his unceasing hostility. His exertions in favour of one negro interested him in the condition of the many others who are seen deserted and begging about the streets of London ; and, at his own expense, he col-



lected a number of them, whom he sent back to Africa, where they formed a colony on the river *Sierra Leone*, which was the precursor of the later negro establishment in the same quarter. He performed a much more essential service to humanity by becoming the institutor of that Society for the abolition of the Slave Trade, which, after contending against a vast mass of prejudiced and interested opposition, at length gloriously succeeded. Similar principles led him to use his endeavours to restrain the arbitrary practice of marine impressment; and, a citizen of London having been carried off by a press warrant, Mr. Sharp took the pains of procuring a *habeas corpus* from the King's Bench to bring him back from a vessel at the Nore, and by his arguments obliged that court to liberate him.

Mr. Sharp was an able linguist, deeply read in divinity, and well acquainted with the scriptures in the original tongues. He was pious and devout without gloom, strictly moral and temperate, a great lover of music, and cheerful in conversation. His services to humanity were distinguished, and not many persons in private life have more deserved honourable commendation. He possessed a very extensive library, in which the theologian, lawyer, classical scholar, politician, antiquary, and orientalist, might find almost every thing of which they could stand in need; and his collection of Bibles was esteemed the best in the kingdom; some of these last he gave to the Library of the British and Foreign Bible Society, of which he was a zealous promoter. The works of Mr. Sharp consist of a variety of Tracts, many of them on important subjects, and are enumerated in Chalmers's Biographical Dictionary, vol. xxvii, p. 409. For further particulars of this excellent man, consult this work, and Aikin's Biographical Dictionary, vol. x, p. 456.

\*6. 1815.—SAMUEL WHITBREAD DIED.

The following tribute to the memory of this great man was delivered by the Marquis of Tavistock in the

House of Commons, on moving for a new writ for the borough of Bedford : ' Accustomed to defend his opinions with warmth and earnestness, the energies of his ample and comprehensive mind would never permit the least approach to tameness or indifference. But no particle of animosity ever found a place in his breast, and he never carried his political enmities beyond the threshold of this House. It was his uniform practice to do justice to the motives of his political opponents ; and I am happy to feel, that the same justice is done to his motives by them. To those who were more immediately acquainted with his exalted character ; who knew the directness of his mind, his zeal for truth, his unshaken love of his country, the ardour and boldness of a disposition incapable of dismay, his unaffected humanity, and his other various and excellent qualities, his loss is irreparable. But most of all will it be felt by the indigent in his neighbourhood. Truly might he be called the poor man's friend. Only those who, like myself, have had the opportunity of observing his conduct nearly, can be aware of his unabated zeal in promoting the happiness of all around him. His eloquent appeals to the House in favour of the unfortunate, will adorn the pages of the future historian ; while, at the present moment, they afford a subject of melancholy retrospect to those who have formerly dwelt with delight on the benevolence of a heart that always beat, and on the vigour of an intellect which was always employed, for the benefit of his fellow creatures !'

7.—THOMAS A BECKET.

This haughty prelate was born in London, in the year 1119, and was the son of Gilbert, a merchant, and Matilda, a Saracen lady, who is said to have fallen in love with him when he was a prisoner to her father in Jerusalem. Thomas received the first part of his education at Merton Abbey in Surrey, whence he went to Oxford, and afterwards studied at Paris,

In 1159, he made a campaign with King Henry to Toulouse, having in his own pay 1200 horse, besides a retinue of 700 knights or gentlemen.

For further particulars respecting Becket we refer to T. T. for 1814, pp. 166-172, and T. T. for 1815, p. 220.

**\*7. 1307.—EDWARD II BEGAN TO REIGN.**

It is not easy to imagine a man more innocent or inoffensive than this unhappy king; nor a prince less fitted for governing that fierce and turbulent people subjected to his authority. He was obliged to devolve on others the weight of government, which he had neither ability nor inclination to bear; the same indolence and want of penetration led him to make choice of ministers and favourites, which were not always best qualified for the trust committed to them. The seditious grandees, pleased with his weakness, and complaining of it, under pretence of attacking his ministers, insulted his person, and invaded his authority; and the impatient populace, ignorant of the source of their grievances, threw all the blame upon the king, and increased the public disorders by their faction and insolence.—(*Hume.*)

**\*7. 1799.—WILLIAM CURTIS DIED.**

Mr. Curtis was brought up to the medical profession, and practised in concert with a Mr. Talwin of Gracechurch-street; but his irresistible *penchant* for botany was found by his partner to interfere too much with his profession. The street-walking duties of a city practitioner but ill accorded with the wild excursions of a naturalist; the apothecary was soon swallowed up in the botanist, and the shop exchanged for a garden. Mr. Curtis, therefore, became a lecturer on the principles of natural science, and a demonstrator of practical botany. His pupils frequented his garden, studied in his library, and followed him into the fields in his herborizing excursions. His first garden was situated at Bermondsey; afterwards he occupied a more extensive one at Lambeth Marsh, which he

finally exchanged for a more salubrious and commodious spot at Brompton. This last garden he continued to cultivate till his death.

His botanical labours have placed him in the very first rank of English writers in this department of science. The splendid '*Flora Londinensis*,' of which a new edition has lately been announced; the '*Botanical Magazine*,' now continued monthly by Dr. Sims; the '*Observations on British Grasses*,' and '*Lectures on Botany*,' bear ample testimony to his ability and industry, and are imperishable monuments of his fame as a botanist. The sale of the *Botanical Magazine* was extensive beyond all former example, and this work still preserves its well-merited celebrity. The *Lectures on Botany* are an excellent introduction to this pleasing science.

\*13. 1718.—WILLIAM PENN DIED.

15.—SAINT SWITHIN.

Swithin, in the Saxon *Swiðum*, received his clerical tonsure, and put on the monastic habit, in the old monastery at Winchester. He was of noble parentage, and passed his youth in the study of grammar, philosophy, and the scriptures. Swithin was promoted to holy orders by Helmstan, Bishop of Winchester, at whose death, in 852, King Ethelwolf granted him the see. In this he continued eleven years, and died in 868. Swithin desired that he might be buried in the open churchyard, and not in the chancel of the minster, as was usual with other bishops; and his request was complied with: but the monks on his being canonized, considering it disgraceful for the saint to lie in a public cemetery, resolved to remove his body into the choir, which was to have been done, with solemn procession, on the 15th of July. It rained, however, so violently for forty days succeeding, that the design was abandoned as heretical and blasphemous, and they honoured his memory by erecting a chapel over his grave, at which many miraculous cures of all kinds

are said to have been wrought. To the above circumstance may be traced the origin of the old saying, 'that if it rains on St. Swithin's, it will rain forty days following!'; a saying that has been very often verified during the last five or six years.—See some curious lines on this subject in T. T. for 1814, p. 172.

**\*15. 1802.—THOMAS DERMODY, POET, DIED.**

The attainments and genius of this young man surpassed almost all that literary biography has recorded of early intellectual acquisition and talent. His education was attentively cultivated by his father (a schoolmaster at Ennis, in Ireland); from whose example, however, he in his early years contracted a fatal and degrading attachment to drinking, in all its excess; which abundantly more than counterbalanced the advantages that he had received from the bountiful Author of Nature, and confined him to a state of abject dependence and wretched poverty through almost the whole of his subsequent life. In his short career his brilliant talents deservedly acquired him a series of benevolent and even splendid and munificent patrons, whose favour, in succession, his perverse and incorrigible misconduct as deservedly lost: and he suffered on different occasions (the results entirely of his imprudence) distress scarcely inferior to any thing that is told of Otway, of Chatterton, or of Boyse. His dissipated life was at length closed in a wretched hovel, at Sydenham, in Kent, by a disorder, the mere effect of incessant inebriation; and he lies interred in the churchyard of Lewisham, with a monument erected over him, on which is inscribed a poetical epitaph, taken from his own works.—(*Butler's Chronological Exercises*, p. 261.)

**\*19. 1783.—JOB ORTON DIED.**

Though a dissenter, his great learning, piety, and moderation, endeared him to many clergy of the establishment. His Exposition of the Old Testament is one of the most useful practical works on the sub-

ject; and his 'Letters to a young Clergyman' should be in the hands of every young minister, both in and out of the establishment.

#### 20.—SAINT MARGARET.

She was born at Antioch, and was the daughter of a Pagan priest. Olybius, president of the East, under the Romans, wished to marry her; but finding that Margaret was a Christian, he postponed his intended nuptials until he could prevail on her to renounce her religion. Our saint, however, was inflexible, and was first tortured, and then beheaded, in the year 278.

#### \*21. 1814.—SPANISH INQUISITION RE-ESTABLISHED.

#### 22.—MARY MAGDALEN.

This day was first dedicated to the memory of St. Mary Magdalen, by King Edward VI. And in his Common Prayer, the *Gospel* for the day is from St. Luke, chap. vii, verse 36. Our reformers, however, upon a more strict inquiry, finding it doubtful whether this woman, mentioned in the *Gospel*, was really Mary Magdalen, thought it prudent to discontinue the festival.

#### \*23. 1588.—ORIGIN OF NEWSPAPERS.

It may gratify our national pride, says Mr. Andrews, to be told, that we owe to the wisdom of Queen Elizabeth, and the prudence of Burleigh, the circulation of the first genuine newspaper, the 'English Mercurie,' printed during the time of the Spanish Armada: the first number, preserved still in the British Museum, is dated July 23, 1588.

#### 25.—SAINT JAMES.

James was surnamed the *Great*, either on account of his age, being esteemed older than the other *James*, or for some particular honour conferred upon him by our Lord. He was by birth a Galilean, and partner with Peter in fishing, from which our Lord called him to be one of his disciples: *Mark i, 19, 20*. Of his ardent zeal, no other proof is necessary than his

becoming the victim of Herod Agrippa. The Spaniards esteem James their tutelar saint.

26.—SAINT ANNE.

She was the mother of the Virgin Mary, and the wife of Joachim her father. Her festival is celebrated by the Latin church.

\*26. 1680.—EARL OF ROCHESTER DIED.

Of the life of this celebrated wit by Bishop Burnet, it cannot be too often observed, 'the critic ought to read it for its elegance, the philosopher for its arguments, and the saint for its piety.' The following lines from Sir John Harrington's *Ariosto* will not be inappropriate in this place.

O poysoned hooke that lurkes in sugred bait,  
O pleasures vain that in this world are found,  
Which like a subtle theefe do lie in waite,  
To swallow man in sink of sinne profound:  
O kings and peeres, beware of this deceit,  
And be not in this gulfe of pleasure drownd:  
The time will come, and I must tell you all,  
When these your joyes shall bitter seem as gall.

Then turne your cloth of gold to clothes of heares,  
Your feasts to fasts, to sorrowes turne your songs,  
Your wanton toyes and smilings into teares,  
To restitution turne your doing wrongs;  
Your fond securenesse turn to godly feares,  
And know that vengeance unto God belongs;  
Who, when he comes to judge the soules of men,  
It will be late alas to mend it then.

Then shall the vertuous man shine like the sunne;  
Then shall the vicious man repent his pleasure;  
Then one good deed of almes sincerely done,  
Shall be more worth than mines of Indian treasure;  
Then sentence shall be giv'n which none shall shun,  
Then God shall weigh and pay our deeds by measure:  
Unfortunate, and thrice accursed, they  
Whom fond delights do make forget that day.

\*31. 1743.—RICHARD SAVAGE DIED.

The hard fate of Savage deserves compassion, though there was little in him either amiable or re-

spectable. He was, however, generous to fellow-sufferers from indigence when he had any thing to bestow, and actually shared his last guinea with a woman who attempted to swear away his life. As a poet, his works must be considered as consigned to oblivion; and, had it not been for his accidental acquaintance with Johnson, the name of Savage would long have ceased to interest the world. As it is, however, his fame will probably be coeval with that of his celebrated biographer, whose 'relation will not be wholly without its use, if those who languish under any part of the sufferings of Savage, shall be enabled to fortify their patience, by reflecting that they feel only those afflictions from which the abilities of Savage did not exempt him; or those, who, in confidence of superior capacities or attainments, disregard the common maxims of life, shall be reminded, that nothing will supply the want of prudence; and that negligence and irregularity, long continued, will make knowledge useless, wit ridiculous, and genius contemptible.'

## Astronomical Occurrences

In JULY 1818.

THE Sun enters Leo at 15 m. after 1 in the afternoon of the 23d of this month; and he rises and sets during the same interval as stated in the following

### TABLE

*Of the Sun's Rising and Setting for every fifth Day.*

July 1st,	Sun rises 45 m. after 3.	Sets 15 m. after 8
6th,	- - - 48 - - 3 -	12 - - 8
11th,	- - - 52 - - 3 -	8 - - 8
16th,	- - - 57 - - 3 -	3 - - 8
21st,	- - - 3 - - 4 -	57 - - 7
26th,	- - - 10 - - 4 -	50 - - 7
31st,	- - - 17 - - 4 -	43 - - 7

### *Equation of Time.*

When the true time of the day is to be found from



that indicated by a good sun-dial, the quantities contained in the following table must be added to the time by the dial.

TABLE.

Wednesday 1st, to the time by the dial	add	<sup>m.</sup> 3	<sup>s.</sup> 16
Monday - 6th, - - - - -		4	12
Saturday - 11th, - - - - -		4	59
Thursday 16th, - - - - -		5	34
Tuesday 21st, - - - - -		5	57
Sunday - 26th, - - - - -		6	6
Friday - 31st, - - - - -		6	1

### *Phases of the Moon.*

New Moon, - -	3d day.	18 m.	after 2 afternoon
First Quarter, -	11th,	37	- 7 morning
Full Moon, - -	17th,	14	- 10 night
Last Quarter, -	24th,	33	past midnight.

### *Moon's Passage over the Meridian.*

The Moon will pass the first meridian at the following times, which, if the weather be favourable, will be convenient moments for observation, viz.—

July 14th, at 52 m.	after 8	in the evening
15th, - 57	- 9	- - - -
16th, - 3	- 11	- - - -
23d, - 27	- 4	- morning
24th, - 10	- 5	- - - -
25th, - 52	- 5	- - - -

### *Eclipses of Jupiter's Satellites.*

The following eclipses of the first and second of these satellites will be visible at the Royal Observatory and its vicinity, this month.

#### EMERSIONS.

1st Satellite,	7th day, at 58 m.	after midnight
- - - - -	16th	- 21 - 9 night
- - - - -	23d	- 16 - 11 - - -
2d Satellite,	8th	- 54 - 9 - - -
- - - - -	15th	- 28 after midnight.

*Other Phenomena.*

Mercury will be in his superior conjunction on the 17th of this month, at half past 6 in the morning. Mars will be in conjunction with the star marked  $\alpha$  in Leo on the 6th, at which time the star will be 40' south of the planet. The Moon will be in conjunction with  $\alpha$  in Libra, at 30 m. past 2 in the morning of the 13th. Venus will be in conjunction with  $\alpha$  in Leo on the 17th, when the star will be 67' south of the planet. On the 29th, Venus will be in superior conjunction, and 19' north of the Sun.

*On the SATELLITES of the PLANETS.*

Reflecting upon the progress of science, and the means by which discoveries have been effected, the mind is forcibly struck with the circumstance that the most important consequences have frequently resulted from the most *trivial* incidents. To these, in conjunction with what *Lord Bacon* has denominated '*the fortunes or adventures of experiment*,' we are indebted for a great part of the natural knowledge at present possessed by man; because, as the same great philosopher has justly observed, '*the wonders of Nature commonly lie out of the high road and beaten paths.*'

The discovery of the satellites is traced to an incident of the simplest kind. The children of a Dutch spectacle maker, being at play with some spectacle-glasses, made use of two of them together, the one convex and the other concave, in looking at the weathercock of a church, and observed that it appeared much nearer and larger than usual. The celebrated *Galileo* having heard of this incident, conceived the idea of applying it to astronomical purposes; and was therefore led, if not to the actual invention of the *telescope*, to such an improvement of it as constituted the value of the invention in a practical sense. By the aid of this instrument, the satellites were discovered; the truth of the Copernican system practically con-

firmed; and the velocity and aberration of light made known, with all the inferences and consequences resulting from these four remarkable facts.

The *satellites* are planets of the second order, which revolve about their primary planets as these do about the Sun, and also accompany them in their revolutions about that central luminary. The Moon is therefore a satellite of the Earth; but her vicinity and comparative importance to the inhabitants of this globe are such as to cause her movements and phenomena to merit separate consideration, several particulars of which have already been submitted to our readers. The satellites of Jupiter were the easiest to be observed, and, therefore, were the first discovered. *Galileo* first saw them on the 7th. of January 1610, to whom they appeared as minute stars at small distances from the planet, and ranged nearly in the same right line. But he soon perceived that they not only accompanied Jupiter in his revolution about the Sun, but that they changed their positions with respect to each other. Further observations showed that their distance from the planet never exceeded certain limits, and that the maxima of these distances were always the same for the same satellite, by which it is distinguished from the others.

To arrive at a knowledge of the laws by which the movements of this class of the heavenly bodies are regulated, it is necessary to consider the phenomena they present, and compare them with those exhibited by the other branches of the solar system. On directing the telescope to the planet, the satellites are seen sometimes on the right of it, and sometimes on the left. When seen on the right, for instance, they are observed to approach the planet, then disappear behind it, and afterwards reappear on the left; on which side their greatest digression is observed to be nearly the same as it had been on the right. Then they return again to the right of the planet, and are

sometimes seen to pass over its disc. Their motion is from west to east, like that of their primaries; and as it is apparently much slower towards the limits than in other parts of their progress, it naturally suggests the idea of its being performed in a circle, the plane of which passes nearly through the eye of the observer. When the satellites of Jupiter are in superior conjunction with respect to the Sun, they ought to pass through his shadow, and this is what is frequently observed to take place, in proceeding from their western to their eastern digression. Sometimes they pass above or below the shadow, but never over the disc of the planet; and in returning to their former positions, those which passed through the shadow ~~thence~~ <sup>thence</sup> the disc; and those which passed above it return below, and the contrary. This is also applicable to the satellites of Saturn, while those of Uranus are never seen to pass either through his shadow, or over his disc. Observations also show that the time between an inferior and a superior conjunction of a satellite is nearly equal to the time of its semi-revolution.

Hence it is inferred that the satellites move round their primaries in curves that return into themselves, with motions that are nearly uniform; and that the planes of their orbits are inclined to the planes of the orbits of their primaries. Astronomers contented themselves for some time with observing only the configurations of the satellites with respect to each other. They perceived that eclipses of these satellites must take place, but their telescopes were not sufficiently powerful to observe them; and the times of their revolutions were therefore determined by the period which elapsed between two of their greatest digressions on the same side of the planet, either both east or both west. But the improvement in telescopes has now rendered observations of the eclipses of the satellites the most accurate means of determining the periodic times of their revolutions.

The middle of the eclipse is sensibly the time of the heliocentric conjunction ; the time elapsed between the middles of two consecutive eclipses is also, without sensible error, the period of a synodic revolution, which is always  $360^\circ$  of relative motion : if to this motion, therefore, there be added the motion of the planet in the interval, the whole motion of the satellite will be obtained. By employing the interval embracing a great number of revolutions, the mean will give the time of each with greater accuracy.

If, in the greatest digressions, the distances of the satellites from the centres of their primaries be measured, and these distances compared with the times of their sidereal revolutions (which are easily found from the synodic), it will be seen that these small bodies follow the law of Kepler respecting the revolutions of the planets ; and when this truth is sufficiently established for the other satellites of Jupiter, it may be employed to determine the revolution of the first, which is too near the body of the planet to admit of this being accurately accomplished by means of its eclipses.

Each planet and its satellites have therefore a great analogy to the Sun, and his system of planets. Hence each presents a small world, in which the same phenomena are observed as in the great world ; and as the times of the revolutions are shorter, the changes are more rapid.

Jupiter is accompanied by *four* satellites, Saturn by *seven*, and Uranus by *six*. The following table contains the mean distances of Jupiter's satellites from the centre of that planet, in the estimation of which the diameter of the planet is taken for unity ; and the times of their revolutions according to the researches of *M. Delambre*.

### Mean Distances and Revolutions of Jupiter's Satellites.

	Distance.	d.	Revolution.		
			h.	m.	s.
1st Satellite, - - -	5.698491 -	1	18	28	33.9
2d, - - - - -	9.066548 -	3	13	17	53.7
3d, - - - - -	14.461895 -	7	3	59	35.8
4th, - - - - -	25.439500 -	16	18	5	7

From the calculations of the same astronomer it also results that half the mean duration of the eclipses of these satellites which take place in the nodes are, as seen through common acromatic telescopes, for the

	A.	M.	S.
1st Satellite, - - - - -	1	7	52
2d, - - - - -	1	26	3
3d, - - - - -	1	46	50
4th, - - - - -	2	22	25

The masses of these satellites in terms of that of Jupiter, according to the same author, are as follow:—

1st Satellite, - - - - -	0.0000173281
2d, - - - - -	0.0000332355
3d, - - - - -	0.0000884972
4th, - - - - -	0.0000426591

the last of which is very nearly equal to that of the Moon, which, in terms of the mass of Jupiter, is 0.000047258.

The inclination of the orbits of three of these satellites to the equator of the planet he states as follows:—That of the first satellite, from its nearness to the planet, is not susceptible of being ascertained with sufficient accuracy.

#### Inclination.

2d, - - - - -	0	6.4
3d, - - - - -	5	1.68
4th, - - - - -	24	33.15

The first three satellites, which are nearest to each other, are connected together by remarkable cir-

cumstances in their motions. The mean sidereal motion of the first, added to *twice* that of the third, will be always equal to *three* times that of the second. This may be easily verified by referring to the following table of their sidereal revolutions, and their mean distances, as given in the *Système du Monde*.

	Sidereal Revol.
1st Satellite, - - - - -	1·7691378 days.
2d, - - - - -	3·5511810
3d, - - - - -	7·1545528
4th, - - - - -	16·6887697

The same relation also takes place with respect to the mean synodic motions, which are as their sidereal motions diminished by that of Jupiter. If the synodic motions be, therefore, substituted in the equation above indicated, the conditions will be fulfilled. For if we put  $m'$ ,  $m''$ , and  $m'''$ , for the mean sidereal motions of the first, second, and third satellite in a Julian year; and denote the sidereal motion of Jupiter in the same time by  $s$ ; the synodic motions of the three satellites are,

$$m' - s, m'' - s, \text{ and } m''' - s.$$

And as, by the hypothesis, we have

$$m' + 2m''' - 3m'' = 0,$$

we have, therefore,

$$(m' - s) + 2(m''' - s) - 3(m'' - s) = 0;$$

in which equation the  $s$  in the plus terms evidently destroys that in the minus one.

The above law, relative to the mean motions, only influences the mean longitudes, reckoned from a given instant; but the absolute mean longitudes themselves are subject to a law equally remarkable: this is, that the mean longitude of the first satellite *minus* three times that of the second, *plus* twice that of the third, is always equal to a semicircumference, or  $180^\circ$ . The relation applies equally to the mean longitudes, either synodic or sidereal. Theory shows that the relations always subsist, and consequently the three satellites can never be all eclipsed at the

same time ; for then their longitudes would be equal, and the above sum would be nothing. The honour of discovering these laws is due to the celebrated author of the *Mécanique Céleste*.

The satellites of Saturn are much less, and can be seen only with large telescopes, and therefore have engaged much less of the attention of astronomers. *Huyghens* was the first who discovered one of Saturn's satellites. This was the largest, and was long regarded as the fourth. *Dominique Cassini* discovered the fifth, and then the third, and a little time afterwards the first and second. But these numbers have since been changed by the discoveries of *Herschel*, who perceived two other satellites belonging to this planet, at a time when the ring could only be seen with his forty-feet telescope. *Cassini* observed that the five satellites then known were subject to the laws of Kepler ; and all the seven, with the exception of the last, revolve sensibly in the plane of the ring. The orbit of the seventh makes an angle of about  $3^{\circ}$  with that plane.

The following table exhibits the sidereal revolutions and proportional distances of these satellites, the radius of Saturn being taken for unity :—

	<i>Prop. dist.</i>	<i>Revolutions.</i>
1st Satellite, - - -	3.080 - - -	0.94271 days.
2d, - - - - -	3.952 - - -	1.37024
3d, - - - - -	4.893 - - -	1.88780
4th, - - - - -	6.268 - - -	2.73948
5th, - - - - -	8.754 - - -	4.51749
6th, - - - - -	20.295 - - -	15.94530
7th, - - - - -	59.154 - - -	79.32960

The satellites of Uranus are still more difficult to be seen than those of Saturn : Dr. *Herschel* is the only person who has yet followed them with any constancy. Their proportional distances and sidereal revolutions are as follow, the radius of the planet being taken for unity :—



	<i>Prop. dist.</i>	<i>Revolutions</i>
1st Satellite, - - - -	13-130 - -	5.8926 days.
2d, - - - - -	17-022 - -	8.7068
3d, - - - - -	19-845 - -	10.9611
4th, - - - - -	22-752 - -	13.4559
5th, - - - - -	45-507 - -	30.0750
6th, - - - - -	91-008 - -	107.6944

## The Naturalist's Diary

For JULY 1818.

Triumphant o'er the thirsty lawn, now heat  
 Diffuses languor on the fainting herds.  
 How deep an azure tints the skies! how clear!  
 Save a few buoyant clouds of firmer white,  
 That, thin ascending, speak a settled calm. BIDLAKE.

JULY is generally accounted the hottest month in the year. In consequence of the excessive heat, an evaporation takes place from the surface of the earth and waters, and large clouds are formed, which pour down their watery stores, and deluge the country with floods, frequently laying the full-grown corn. Hay-making usually commences about this time, or rather earlier, in fine seasons.

The flowers which blossomed in the last month soon mature their seeds, and hasten to decay. A new race succeeds, which demands all the fervid rays of a solstitial sun to bring it to perfection.

The different tribes of *insects* which, for the most part, are hatched in the spring, are now in full vigour.

We wonder at a thousand insect forms,  
 These hatched and those resuscitated worms,  
 New life ordained, and brighter scenes to share,  
 Once prone on earth, now buoyant upon air.

COWPER.

Summer may be said to commence with this month: the meadows begin to whiten, and the flowers that adorn them are mowed down. The corn gradually assumes a yellow hue, and the colours that decorate the rural scene are no longer so numerous.

The principal parts of a summer's day, but more particularly morning, evening, and night, have been the favourite theme of poets, from the most remote antiquity. Each has something picturesque and beautiful that affects every sense with unspeakable pleasure, particularly the sight, which is the most perfect and beautiful of all our senses; which fills the mind with the greatest variety of ideas, converses with its objects at the remotest distance, and continues the longest in action without being tired or satiated with its proper enjoyments. Beside the glowing colours of the flowers, and the still enlivening verdure of the woods, the eye beholds an innumerable quantity of fruits, which, by virtue of the secret laws of Nature, grow in our fields and gardens, and which, after thus delighting the sense of vision, may be gathered and preserved to contribute to our subsistence. The flowers present to our senses the most agreeable diversity: we not only admire the richness of their attire, but the fecundity of Nature in the numberless species of them. What variety too, what beauty in every plant, from the lowly moss to the towering oak! If we wander from flower to flower, the eye is still unsated with the view. If we ascend the highest mountains, pierce into the midnight depth of groves, or descend into the spacious vale, we discover new beauties spread around in wonderful profusion.

Agreeably to the method we have adopted, of enriching our pages with poetical description, we shall here present our readers with the most striking parts of a summer's day, which, not to multiply quotations, we shall select only from the poet of the Seasons.

#### MORNING.

Short is the doubtful empire of the Night,  
And soon, observant of approaching Day,  
The meek-eyed Morn appears, mother of dews,  
At first faint-gleaming in the dappled east;  
And, from before the lustre of her face,

White break the clouds away. With quickened step,  
 Brown Night retires: Young Day pours in apace,  
 And opens all the lawny prospect wide.  
 The dripping rock, the mountain's misty top,  
 Swell on the sight, and brighten with the dawn.  
 Blue, through the dusk, the smoking currents shine;  
 And from the bladed field the fearful hare  
 Limp, awkward: while along the forest glade  
 The wild deer trip, and, often turning, gaze  
 At early passenger. Music awakes  
 The native voice of undissembled joy;  
 And thick around the woodland hymns arise

\* \* \* \* \*

But yonder comes the powerful King of Day,  
 Rejoicing in the east. The lessening cloud,  
 The kindling azure, and the mountain brow  
 Illumed with fluid gold, his near approach  
 Betoken glad. Lo! now, apparent all,  
 Aslant the dew-bright earth, and coloured air,  
 He looks in boundless majesty abroad;  
 And sheds the shining day, that burnished plays  
 On rocks and hills, and towers, and wandering streams,  
 High gleaming from afar.

#### FORENOON.

Now, flaming up the heavens, the potent Sun  
 Melts into limpid air the high-raised clouds,  
 And morning fogs, that hovered round the hills  
 In party-coloured bands; till wide unveiled  
 The face of Nature shines, from where earth seems,  
 Far stretched around, to meet the bending sphere.

#### NOON.

'Tis raging noon; and, vertical, the Sun  
 Darts on the head direct his forceful rays.  
 O'er heaven and earth, far as the ranging eye  
 Can sweep, a dazzling deluge reigns; and all,  
 From pole to pole, is undistinguished blaze.  
 In vain the sight, dejected to the ground,  
 Stoops for relief; thence hot ascending steams  
 And keen reflection pain. Deep to the root  
 Of vegetation parched, the cleaving fields  
 And slippery lawn an arid hue disclose,  
 Blast Fancy's blooms, and wither e'en the soul.  
 Echo no more returns the cheerful sound  
 Of sharpening scythe; the mower, sinking, heaps  
 O'er him the humid hay, with flowers perfumed;  
 And scarce a chirping grasshopper is heard

Through the dumb mead. Distressful Nature pants.  
The very streams look languid from afar ;  
Or, through th' unsheltered glade, impatient, seem  
To hurl into the covert of the grove.

## AFTERNOON.

The Sun has lost his rage ! His downward orb  
Shoots nothing now but animating warmth,  
And vital lustre ; that, with various ray,  
Lights up the clouds, those beauteous robes of heaven,  
Incessant rolled into romantic shapes,  
The dream of waking Fancy ! Broad below,  
Covered with ripening fruits, and swelling fast  
Into the perfect year, the pregnant earth  
And all her tribes rejoice. Now the soft hour  
Of walking comes ; for him who lonely loves  
To seek the distant hills, and there converse  
With Nature.

## EVENING.

Low walks the Sun, and broadens by degrees,  
Just o'er the verge of day. The shifting clouds  
Assembled gay, a richly-gorgeous train,  
In all their pomp attend his setting throne.  
Air, earth, and ocean, smile immense. And now,  
As if his weary chariot sought the bowers  
Of Amphitrite and her tending nymphs,  
(So Grecian fable sung) he dips his orb ;  
Now half immersed ; and now a golden curve  
Gives one bright glance, then total disappears.

\* \* \* \* \*

Confessed from yonder slow-extinguished clouds,  
All other softening, sober Evening takes  
Her wonted station in the middle air,  
A thousand *shadows* at her beck. First *this*  
She sends on earth ; then *that* of deeper die  
Steals soft behind ; and then a *deeper* still,  
In circle following circle, gathers round,  
To close the face of things. A fresher gale  
Begins to wave the wood, and stir the stream,  
Sweeping with shadowy gust the fields of corn ;  
While the quail clamours for his running mate.  
Wide o'er the thistly lawn, as swells the breeze,  
A whitening shower of vegetable down  
Amusive floats. The kind impartial care  
Of Nature nought disdains : thoughtful to feed  
Her lowest sons, and clothe the coming year,  
From field to field the feathered seed she wings.

## NIGHT.

Among the crooked lanes, on every hedge,  
 The glowworm lights his gem, and through the dark  
 A moving radiance twinkles. Evening yields  
 The world to Night; not in her winter robe  
 Of massy Stygian woof, but loose arrayed  
 In mantle dun. A faint erroneous ray,  
 Glanced from th' imperfect surfaces of things,  
 Flings half an image on the straining eye;  
 While wavering woods, and villages, and streams,  
 And rocks, and mountain-tops, that long retained  
 Th' ascending gleam, are all one swimming scene,  
 Uncertain if beheld. Sudden to heaven  
 Thence weary vision turns; where, leading soft  
 The silent hours of love, with purest ray  
 Sweet Venus shines; and from her genial rise,  
 When daylight sickens till it springs afresh,  
 Unrivalled reigns the fairest lamp of night.

Towards the middle of the month, the spiked willow (*spiræa salicifolia*), jessamine (*jasminum officinale*), hyssop (*hyssopus officinalis*), the bell-flower (*campanula*), and the white lily, have their flowers full blown. The wayfaring tree, or guelder rose, begins to enrich the hedges with its bright red berries, which in time turn black.

The potatoe (*solanum tuberosum*) is now in flower. Some observations on this useful plant we select from Dr. Skrimshire's entertaining 'Essays on Natural History.'—Potatoes differ much in appearance, in fruitfulness, in flavour, and other palatable qualities, and in the time of coming to perfection. Some potatoes are round, others oblong or kidney-shaped, some red, others white; some rough, some smooth, some grow in close clusters, and others at a distance from the parent roots. The stems also vary. The yield of some is fifty-fold, of others not above three or four-fold; some are always large, others all small. When cooked, they may be either sweet, insipid, watery, or waxy, or mealy. Some plants have come to their full growth in the beginning of August, others not till the end of October. All these varieties

are independent of soil, season, or other adventitious circumstance; and no two of the properties above specified are necessarily connected, so that there may be early red, or late red, productive red, or such as are but very little productive; there may be mealy red, and waxy red. In the same way the kidney-shaped, or the rough red, or any other, may vary in all the other particulars. But then let this very important fact be known and remembered, that each of these varieties will produce others with precisely the same peculiarities; that is, if propagated in the usual way by the root, or part of the root: but the seeds of any sort of potatoe will produce all the varieties. Thus, plant some of the white kidney potatoes which you know to be mealy when boiled, and that you have formerly observed to flower and come to perfection early; and plant only from such roots as you selected at the time as the most productive; and if properly cultivated, you will surely have a good produce of early white kidney-shaped mealy potatoes. If these observations are accurate, you will be ready to say it is surely a very easy matter to have excellent potatoes with all these good properties; and how happens it, therefore, that we so very seldom meet with such? It is because the cultivators, ignorant of the above important fact, have never paid the proper attention to selecting the best sorts, and have been led into several gross errors in consequence of it. It is a commonly received opinion, that potatoes should never be grown upon the same soil more than a few years together; and it is a common practice to select the smallest potatoes for planting, without any attention to other circumstances. These two errors alone are enough to deteriorate all the potatoes in the kingdom, and would in a course of time effectually root out all the best sorts, were there not a few more intelligent cultivators attending to the selection and growth of such only as are good.

Pomona now offers her fruits to allay the parching

thirst; currants, gooseberries, raspberries, strawberries, cherries, and cranberries, are all peculiarly refreshing at this season.

Towards the end of the month, the flowers of the laurustinus (*viburnum tinus*), and the burdock (*arctium lappa*), begin to open; and the elecampane (*simula helenium*), the amaranth (*amaranthus caudatus*), the great water plantain (*alisma plantago*), water mint (*mentha aquatica*), and the common nightshade, have their flowers full blown.

What spicy odours fill the luscious gale!  
 Carnations freckled with fantastic stripes,  
 Or pinks, bright-eyed, with flowery fulness burst  
 Their verdant cups, where little insects pass  
 Delicious lives. The *pea* diffuses sweets;  
 Bright the *nasturtium* glows, and late at eve  
 Light lambent dances o'er its sleepless lids;  
 The *jasmine*, elegantly simple, shines:  
 What insect tribes, now glittering, make the day  
 More lustrous, drest in ever-varying dyes,  
 That in the joyous sunbeams proudly spread  
 Their coloured glories! Blush, ye vain! outdone  
 By painted flies! ye Fair, who at the glass  
 The gaze-ful morning waste! your beauties too  
 Are gifts of insect pride; mere flowery bloom  
 That mortals read each day, which, were ye wise,  
 Would plant unfading blossoms in the soul.  
 What rich variety of beauty paints  
 The *butterfly*! Yon emperor's gaudy pomp,  
 Or him, whose wings of radiant white, adorned  
 With orange tints, delight the noontide hours:  
 Or many a tender plumage, decked in all  
 That fancy forms, and all that colour gives.  
 What golden glories robe the worthless *fly*!  
 What scarlet lustre, and what purpling green!  
 The humble *beetle* from the earth comes forth  
 In splendid beauty. Other glittering tribes,  
 With green, or brown wing, gleaming all in gold,  
 O'er the poor flitting race destruction bring;  
 Such oft the tyranny of specious power. BIDLANE.

Young frogs leave their ponds, and resort to the tall grass for shelter; swallows and martins congregate previously to their departure; young partridges are

found among the corn; and poultry moult. The hoary beetle (*scarabæus solstitialis*) makes its appearance; bees begin to expel and kill drones; and the flying ants quit their nests.

The 'busy bee' still pursues his ceaseless task of collecting his varied sweets to form the honey for his destroyer *man*, who, in a month or two, will close the labours of this industrious insect by the suffocating fumes of brimstone. For poetical illustrations, see our last volume, pp. 216, 303.

Grouse-shooting usually commences towards the latter end of this month. The grouse (*tetrax tetrax*) is found chiefly among the mountains in Scotland, and on the moors of Yorkshire, and in some parts of Wales. The male is two feet in length, and weighs nearly four pounds; while the female is only about half that length and weight. Their principal food is derived from the tops of heath, and the cones of the pine-tree, by which they acquire a delicate flavour, and are speedily fattened.

Now is it sometimes pleasure to steal forth  
At sultry midnoon, when the busy fly  
Swarms multitudinous, and the vexed herd  
Of milch-kine slumber in yon elm-grove shade,  
Or unrecumbent exercise the cud  
With milky mouths. 'Tis pleasure to approach,  
And, by the strong fence shielded, view secure  
Thy terrors, Nature, in the savage bull.  
Soon as he marks me, be the tyrant fierce—  
To earth descends his head—hard breathe his lungs  
Upon the dusty sod—a sulky leer  
Gives double horror to the frowning curls  
Which wrap his forehead—and ere long be heard  
From the deep cavern of his lordly throat  
The growl insufferable. Not more dread  
And not more sullen the profoundest peal  
Of the far distant storm, which o'er the deep,  
Clothed in the pall of midnight premature,  
At ev'ning hangs, and jars the solid earth  
With its remote explosion. Tramples then  
The surly brute, impatient of disdain,  
And spurns the soil with irritated hoof,  
Himself inhaler of the dusty cloud,



Himself insulted by the pebbly shower  
Which his vain fury raises.

HURDIS.

The *maritime plants* which flower in July, are the club rush (*scirpus maritimus*), bearded cat's tail grass (*phleum crinitum*), bulbous fox tail grass (*alopecurus bulbosus*), the reflexed and creeping meadow grass (*poa distans & maritima*), the field eryngo (*eryngium campestre*), parsley water dropwort (*ænanthe pimpinelloides*), smooth sea-heath (*frankenia lævis*), and the golden dock (*rumex maritimus*); all of which are to be found in salt marshes.

On *sandy shores* may be seen the sea-mat weed (*arundo arenaria*), upright sea-lime grass (*elymus arenarius*), the sea lungwort (*pulmonaria maritima*), the sea bind-weed (*convolvulus soldanella*), saltwort (*salsola*), sea-holly (*eryngium maritimum*): prickly samphire (*echinophora spinosa*), and the sea-lavender (*statice limonium*), are found on maritime rocks; and the sea pea (*pisum maritimum*) on rocky shores.

About the middle or latter end of July, pilchards (*clupea pilchardus*) appear in vast shoals, off the Cornish coast; and prawns and lobsters are taken in this month.

The storms of wind and rain in this month are frequently accompanied by *thunder* and *lightning*<sup>1</sup>. Among the awful phenomena of nature, none have excited more terror than these. Some of the profligate Roman emperors, of whom history records that they procured themselves to be deified, confessed, by their trembling and hiding themselves when they heard the thunder, that there was a Divine Power greater than their own—*cælo tonantem Jovem*. The greatest security against the *terrors* of a thunder-storm, although no certain one against its *effects*, is that life of piety and virtue which is the best guardian of every earthly blessing. The good man, who knows

<sup>1</sup> For some useful hints to guard against the danger of these phenomena, consult our last volume, p. 217.

that every event is under the direction of an overruling Providence, and that this life is only a part of his existence, introductory to the blissful scenes of immortality, will behold the terrors of the storm with unshaken resolution, grateful to the Supreme Being if permitted to escape from the danger, and acquiescing in the Divine Will, if thus to be conveyed, by an easy and instantaneous passage, to that heaven where his conversation had long been, and to that God with whom he delighted to walk.

These sentiments are beautifully expressed in the following lines, written in a midnight thunder-storm, by the celebrated Mrs. Carter, and addressed to a lady :—

Let coward Guilt with pallid fear  
To sheltering caverns fly,  
And justly dread the vengeful fate  
That thunders through the sky.

Protected by that Hand, whose law  
The threat'ning storms obey,  
Intrepid Virtue smiles secure,  
As in the blaze of day.

In the thick cloud's tremendous gloom  
The lightnings' lurid glare,  
It views the same All-gracious Pow'r,  
That breathes the vernal air.

Through Nature's ever-varying scene,  
By different ways pursued,  
The one eternal end of Heaven  
Is universal good.

The same unchanging Mercy rules  
When flaming ether glows,  
As when it tunes the linnets' voice,  
Or blushes in the rose.

By Reason taught to scorn those fears  
That vulgar minds molest,  
Let no fantastic terrors break  
My dear Narcissa's rest.

Thy life may all the tend'rest care  
Of Providence defend,  
And delegated angels round  
Their guardian wings extend !

When, through creation's vast expanse,  
The last dread thunders roll,  
Untune the concord of the spheres,  
And shake the rising soul;

Unmoved mayst thou the final storm  
Of jarring worlds survey,  
That ushers in the glad serene  
Of everlasting day!

## AUGUST.

SEXTILIS was the antient Roman name of this month, being the sixth from March. The Emperor Augustus changed this name, and gave it his own, because in this month Cæsar Augustus took possession of his first consulship, celebrated three triumphs, reduced Egypt under the power of the Roman people, and put an end to all civil wars. 'The Saxons called August *arn-monat* (more rightly *barn-monat*), intending thereby the then filling of their barns with corn.'

## Remarkable Days

In AUGUST 1818.

### 1.—LAMMAS DAY.

THIS day, in the Romish church, is generally called *St. Peter in the Fetters*, in commemoration of this apostle's imprisonment. It is probably derived from an old Saxon term, signifying *Loaf-Mass*; as it was customary for the Saxons to offer an oblation of loaves, made of new wheat, on this day, as the first-fruits of their new corn.

### 6.—TRANSFIGURATION.

Though this day was observed in remembrance of our Lord's *Transfiguration* on the Mount, by the primitive Christians, yet it is but of recent date in the church of Rome; as it was not instituted by Pope Calixtus until the year 1455.

## 7.—NAME OF JESUS.

Before the Reformation, this day was dedicated to *Afra*, a woman who had been converted to Christianity by Narcissus, Bishop of Jerusalem, and who afterwards suffered martyrdom; and the breviary was recognized by Paul V. Afterwards Donatus, who became martyr in the time of Julian for refusing to sacrifice, was substituted in her place. Our reformers devoted it to the NAME OF OUR BLESSED LORD.

## \*7. 1799.—JOHN BACON DIED.

Few of our cathedrals or public edifices are without some specimens of the skill of this eminent sculptor. One of his grandest efforts is the monument of Lord Chatham, in Westminster Abbey, which was begun in 1778, and finished in 1783. It is alone a proof of the excellence he had attained without the aid of foreign travel and observation; and how various that excellence was may be further proved from the bronze groupe in the square in Somerset Place; the monument of Lord Halifax in Westminster Abbey; the statue of Judge Blackstone for All Souls' College, Oxford; that of Henry VI for the anti-chapel at Eton; the monuments of *Howard* and *Johnson* in St. Paul's, &c. &c. Mr. Bacon was a man of unfeigned piety and extensive benevolence. The following inscription he ordered by his will to be placed on a plain stone over his grave:—'What I was as an artist, seemed to me of some importance while I lived: but what I really was as a believer in Christ Jesus, is the only thing of importance to me now.' Mr. Bacon's second son, John, has already proved himself the legitimate successor to the talents of his father.

## \*7. 1806.—ELIZABETH SMITH DIED.

## 10.—SAINT LAWRENCE.

St. Lawrence was, by birth, a Spaniard, and treasurer of the Church of Rome, being deacon to Pope Sextus, about the year 259. Soon afterwards, his

bishop was killed by the soldiers of Valerian the emperor, with whom our saint would willingly have died. Lawrence refusing to deliver up the church treasure, which they imagined to be in his custody, he was laid upon a gridiron, and broiled over a fire: this torture he bore with such incredible patience and cheerfulness, that he told his tormentors to turn him round, as he was done enough on one side. His martyrdom was so highly esteemed, that Pulcheria, the empress, erected a temple to his honour, which was afterwards either rebuilt or greatly enlarged by Justinian. In this temple, the gridiron on which he died was deposited with great pomp and solemnity; and, if we may believe St. Gregory, it became famous for abundance of miracles. The celebrated palace of the Escorial is dedicated to this saint. See this described in T. T. for 1814, p. 199.

12. 1762.—PRINCE REGENT BORN.

\*13. 1783.—JOHN DUNNING, LORD ASHBURTON, DIED.

He was the best common lawyer as well as the best orator of his time; and although he had no advantages of person, and was continually troubled with a hectic cough, which frequently interrupted the stream of his eloquence, yet, he no sooner opened a cause which required any exertion of talent, than his mind, like the sun, broke forth in the full meridian of its brightness. He preserved the dignity of a barrister very much in court, and frequently kept even the judges in check. When Lord Mansfield, who had great quickness in discovering the jut of a cause, used to take up a newspaper by way of amusing himself, while Dunning was speaking, the latter would make a dead stop. This would rouse his lordship to say, 'Pray go on, Mr. Dunning.' 'No, my lord, not till your lordship has finished.' His reputation was as high with his fellow barristers as with the public; he lived very much with the former, and had their affection and esteem. He had

that integrity in his practice, that on the opening of any cause, which he found by the evidence partook of any notorious fraud or chicanery, he would throw his brief over the bar, with great contempt, and would resort to his bag for a fresh paper. Though Lord Ashburton died at the early age of 52, such was the extent of his practice, that he left behind him a fortune of £180,000. He is one of the many persons to whom the celebrated 'Letters of Junius' have been attributed.

#### 15.—ASSUMPTION.

This is a festival in the Greek and Romish churches, in honour of the supposed miraculous ascension of the Virgin Mary into heaven.

#### \*17. 1786.—FREDERICK THE GREAT DIED.

The life and actions of Frederick II of Prussia are probably familiar to most of our readers. The mode of passing his time deserves notice, and is worthy of recommendation to many of the crowned heads of Europe in the present day. It was closely imitated by the late Emperor Napoleon. Frederick's dress was plain in the extreme, and always military; a few minutes early in the morning served time to arrange it, and it was never altered in the day: boots always made a part of it. Every moment, from five o'clock in the morning to ten at night, had its regular allotment. His first employment when he arose, was to peruse all the papers that were addressed to him from all parts of his dominions, the lowest of his subjects being allowed to write to him, and certain of an answer. Every proposal was to be made and every favour to be asked in writing; and a single word, written with a pencil in the margin, informed his secretaries what answer to return. His expeditious method excluded all verbal discussion, saved abundance of time, and enabled the king so well to weigh his favours, that he was seldom deceived by his ministers, and seldom assented or denied improperly.

About eleven o'clock the king appeared in his garden, and reviewed his regiment of guards, which was done at the same hour by all the colonels in his provinces. At twelve precisely he dined; and usually invited eight or nine officers. Two hours after dinner, Frederick retired to his study, where he amused himself in composing verse or prose, or in the cultivation of some branch of literature. At seven commenced a private concert, in which he played upon the flute with the skill of a professor; and frequently had pieces rehearsed which he had composed himself. The concert was followed by a supper, to which few were admitted except literary men and philosophers; and the topics of conversation were suited to such a party. As he sacrificed many of his own gratifications to the duties of royalty, he exacted a severe account from officers, and all who held any places under him. But in many things he was indulgent, and particularly held all calumny in so much contempt, that he suffered some of the most scurrilous writers to vent their malice with impunity. 'It is my business,' said he, 'to do the duties of my station, and to let malevolence say what it will.'

\*17. 1809.—MATTHEW BOULTON DIED, ET. 81.

To Mr. Boulton, in conjunction with Mr. Watt, the public are greatly indebted for the most important improvements in the *steam-engine*, and for the first application of this wonderful power to *coining*. By means of this engine all the operations are concentrated on the same spot. It works a number of coining machines with greater rapidity and exactness by a few boys from twelve to fourteen years of age, than could be done by a great number of strong men, without endangering their fingers, as the machine itself lays the blanks upon the die perfectly concentric with it, and, when struck, displaces one piece, and replaces another. The coining mill, which was erected

in 1788, and has since been greatly improved, is adapted to work eight machines, and each is capable of striking from sixty to an hundred pieces of money in a minute, the size of a guinea, which is equal to between 30,000 and 40,000 per hour at the same blow, which strikes the face and reverse; the edge of the piece is also struck, either plain, or with an inscription.

In a national view, Mr. Boulton's undertakings have been highly valuable and important. By collecting round him artists of various descriptions, rival talents have been called forth; and by successive competition, have been multiplied to an extent highly beneficial to the public. A barren heath has been covered with plenty and population; and these works (Soho), which, in their infancy, were little known and attended to, now cover several acres, give employment to more than 600 persons, and are, indubitably, the first of their kind in Europe. No expense has been spared to render the works uniform and handsome in architecture, as well as neat and commodious. The same liberal spirit and taste have been displayed on the adjoining gardens and pleasure-grounds, which, at the same time that they form an agreeable separation from the proprietor's residence, render *Soho* a much admired scene of picturesque beauty. No one who passes through *Birmingham* will neglect to pay a visit to this place.

A foundery has lately been established at Smethwick, a short distance from Soho, by the proprietor of the latter place, for the manufactory of steam-engines. Here that powerful agent is employed, as it were, to multiply itself, and its various parts are fabricated and adapted together with the same regularity, neatness, and expedition, which distinguish all the operations of their manufactory. These engines are afterwards distributed to all parts of the kingdom by the *Birmingham* canal, which communicates with a wet dock belonging to the foundery.



## \*21. 1814.—COUNT RUMFORD DIED.

He employed his great abilities and great acquirements in promoting the comforts and the happiness of mankind; condescending to subjects generally accounted mean, but really in themselves of extensive and great consequence. The author of the '*Pursuits of Literature*' thus spoke of him, during his life:—

Yet all shall read, and all that page approve,  
Where *public spirit* meets with *public love* !  
Thus, late, where poverty with rapine dwelt,  
RUMFORD's kind genius, the Bavarian, felt;  
Not by romantic charities beguiled,  
But calm in project, and in mercy mild,  
Where'er his wisdom guided, none withstood,  
Content with peace and practicable good :  
Round him the labourers throng, the nobles wait,  
Friend of the poor, and guardian of the state.

## \*22. 1773.—LORD LYTTLETON DIED.

The principal work of this elegant writer is the '*History of Henry the Second*,' in three volumes quarto. A tendency to prolixity is the chief fault of this history, which has prevented it from becoming popular, though it retains its reputation as a standard work. Its character, with that of the writer, is happily appreciated in the following lines, by Hayley:—

With purer spirit, free from party strife,  
To sooth his evening hour of honoured li  
See candid Lyttleton at length unfold  
The deeds of liberty in days of old !  
Fond of the theme, and narrative with age,  
He winds the lengthened tale through many a page ;  
But there the beams of patriot virtue shine ;  
There truth and freedom sanctify the line :  
And laurels, due to civil wisdom, shield  
This noble Nestor of th' historic field.

Lord Lyttleton's poems preserve a place among the select productions of the British muse, rather on account of the correctness of their versification, the elegance of their diction, and the delicacy of their sentiments, than as exhibiting any uncommon poetical powers. They are perused with pleasure, and

contain nothing to offend. His miscellaneous pieces in prose, parliamentary speeches, letters, &c. all display a good heart and a well cultivated mind.

24.—SAINT BARTHOLOMEW.

The word Bartholomew means the son of Telmai, or Tolomæus, the name of a family among the Jews, mentioned by Josephus. He preached the Gospel in Armenia, converted the Lycaonians, and afterwards visited India. Some authors assert that he was crucified, like St. Peter, with his head downwards; others, however, with more probability, say, that he was flayed alive, by order of Astyages, King of Armenia.

In the year 1662, on this day, 2000 ministers were ejected from their livings, because they would not comply with the Act of Uniformity. The anniversary of Bartholomew is also memorable for the cruel massacre of the Protestants in France, begun on this day in the reign of Charles IX. Some calculate the number of miserable sufferers at *seventy*, others at a *hundred thousand*!—See particulars of this massacre in T. T. for 1814, p. 201.

\*25. 1270.—LOUIS IX DIED.

This king, usually styled *Saint Louis*, deservedly ranks among the greatest and best of his race. His foibles were the excess of good qualities; and if superstition led him into projects and practices injurious to his kingdom and degrading to himself, the genuine spirit of religion deserves the credit of having guarded the purity of his morals, and rendered him one of the most upright and benevolent of men. The Catholic church, approving his piety without distinction, holds his memory in high respect. Pope Boniface VIII canonized him in 1297; and his descendant, Louis XIII, procured the day dedicated to his honour to be declared a general feast of the church. It is still celebrated with great pomp and ceremony in France.

\*27. 1802.—WEST INDIA DOCKS OPENED.

## 28.—SAINT AUGUSTINE.

Augustine was born at Thagaste, a town in Numidia, in the year 354. He early applied himself to the study of polite literature, and became a professor of philosophy and rhetoric, first at Rome, and afterwards at Milan. He next diligently studied theology, in which he was instructed by St. Ambrose, with whom he contracted an intimate acquaintance. In the year 388, he returned to his native country, and, three years afterwards, was chosen Bishop of Hippo. Augustine was a judicious divine, and the most voluminous writer of all the Fathers. He died in 430, at the age of 77.

## 29.—JOHN BAPTIST BEHRADED.

This day was formerly denominated *Festum Collectionis Sancti Johannis Baptistæ*; or the feast of gathering up St. John the Baptist's relics; but afterwards, by corruption, *Festum Decollationis*, the festival in remembrance of his being beheaded. His nativity is celebrated on the 24th of June, which see; and also our last volume, p. 164, for some lines on St. John, by Cottle.

## \*AUG. 1483.—LOUIS XI DIED.

This monarch has been transmitted to posterity in the blackest colours, and has obtained the title of the *Tiberius* of France. He had, indeed, the dark dissimulation and the unfeeling severity of that emperor, with perhaps less regard to equity. He was a bad son, a bad husband, a bad father, a bad master, and a tyrannical sovereign. He depressed the nobility, and raised the lower orders, freely admitting merchants and men of talents to his table and conversation. His aversion to war, though it led him to some dishonourable compliances, promoted the welfare of his dominions; and no king of France made more valuable additions to the crown at less cost. His favourite ministers were chosen from the lowest classes, and therefore were entirely devoted to his will. Francis I said of him, that it was he who

first put kings '*hors de page,*' out of tutelage; but it was by means that will for ever brand his name with the stamp of tyranny. He was the author of several useful establishments, and the administration of justice was generally pure *where he was not himself concerned.* This prince instituted the order of St. Michael, and was the first French king who bore the title of *Most Christian!*

## Astronomical Occurrences

In AUGUST 1818.

THE Sun enters Scorpio at 56 m. past 1 on the 11th of this month; and his rising and setting will be as in the following table for the same period:—

TABLE

*Of the Sun's Rising and Setting for every Fifth Day.*

August 1st, Sun rises	19 m. after 4.	Sets	41 m. after 7
6th, - - -	27 - - 4.	- 33 - -	7
11th, - - -	35 - - 4.	- 25 - -	7
16th, - - -	44 - - 4.	- 16 - -	7
21st, - - -	53 - - 4.	- 7 - -	7
26th, - - -	2 - - 5.	- 58 - -	6
31st, - - -	12 - - 5.	- 48 - -	6

*Equation of Time.*

To find mean time from that indicated by a good sun-dial, add the following quantities to those given by the dial, and the required time will be obtained for every 5th day of the month. The quantities to be added for the intermediate days must be found by proportion.

TABLE.

		m.	s.
Saturday, Aug. 1st, to the time on the dial add	-	5	58
Thursday - 6th, - - - - -	-	5	35
Tuesday - 11th, - - - - -	-	4	57
Sunday - 16th, - - - - -	-	4	4
Friday - 21st, - - - - -	-	2	59
Wednesday - 26th, - - - - -	-	1	42
Monday - 31st, - - - - -	-	0	15

*Phases of the Moon.*

New Moon,	- -	2d day,	at 22 m. after 4 morning.
First Quarter,	- 9th	- - 23	- - 2 afternoon.
Full Moon,	- 16th	- - 5	- - 6 morning.
Last Quarter,	- 24th	- - 12	- - 5 afternoon.
New Moon,	- 31st	- - 28	- - 5 afternoon.

*Moon's Passage over the Meridian.*

The Moon will pass the first meridian at the following epochs, during the present month, viz.

August 12th, at 46 m. past 8 in the evening.

13th,	- 51	- - 9	- - - -
14th,	- 54	- - 10	- - - -
22d,	- 33	- - 4 morning.	
23d,	- 18	- - 5	- - - -
24th,	- 6	- - 6	- - - -
25th,	- 55	- - 6	- - - -

*Eclipses of Jupiter's Satellites.*

The following will be the only eclipses of Jupiter's first and second satellites visible at the Royal Observatory this month :—

## EMERSONS.

1st Satellite,	8th day,	36 m. after 9 night.
- - -	31st,	51 - - 9 - -
2d Satellite,	9th,	30 - - 9 - -

*Other Phenomena.*

Mercury will be in conjunction with the star marked  $\alpha$  in Leo, on the 2d of this month, when the star will be 47' south of the planet; and he will also attain his greatest elongation on the 17th. The Moon will be in conjunction with  $\alpha$  in Scorpio at 56m. after one in the morning of the 11th. No other phenomena occur during the present month which merit notice.

*On the RING of SATURN.*

Saturn presents one of the most singular phenomena in the system of the world. Besides the satellites which we have already noticed, Saturn is ge-

nerally seen situated between two bodies resembling handles, the figure and magnitude of which are constantly changing. They even sometimes disappear altogether, and then reappear after a certain interval; during which the body of this planet appears round, like those of the other planets.

As these appearances are constantly produced, according to a regular succession, we are necessarily led to conclude that the cause which produces them is constant, and hence they must be attributed to some solid body which encompasses the planet, and which disappears and reappears successively. But as we are not acquainted with any heavenly body which has the property of shining by its own light at alternate intervals, we naturally infer that this shines by the reflected light of the Sun, and that the variations which it presents arise from changes in its position and form. The improvement of telescopes and attentive observation have shown that these singular appearances arise from a magnificent ring which encircles the body of that planet. This ring is very thin, and its plane coincides with that of the equator of the planet; from which, however, the ring itself is wholly detached. The plane of the ring is also inclined to the plane of the ecliptic in an angle of  $34^{\circ} 48'$ ; and as Saturn moves in the plane of his orbit, accompanied by this ring, it is thus presented to the earth in different positions and under different inclinations, which produces the phenomena above described.

Thus, when the side of the ring which is enlightened by the Sun is turned towards the earth, it appears luminous; but, when the opposite side is turned towards us, it cannot be perceived. When the plane of the ring passes through the centre of the earth, it cannot be visible, because it is not then capable of reflecting any part of the light that falls upon it, at least in a direction which can reach the earth. When its plane passes through the Sun, the

ring must also disappear to common observation, since the reflected light, which in that position proceeds only from its edge, is too feeble to render it visible with common astronomical telescopes. But by employing very powerful telescopes, the edge of the ring may be perceived, and appears like a fine luminous line across the disc of the planet. This line, indeed, is so fine as scarcely to subtend a second of a sexagesimal degree; but at that distance a second answers to a thickness of about 4500 English miles. The general appearance of the ring, however, is that of an ellipse of greater or less eccentricity. The maximum of the conjugate axis is about half the transverse, and the ratio varies from that limit till the ellipse becomes a right line. The space between the planet and the ring is nearly equal to the breadth of the latter, and about one-third of the diameter of the planet.

If the apparent radius of Saturn be  $9''$ , the exterior radius of the ring will be about  $21''$ , and the interior only  $15''$ ; thus the breadth of the ring and the space between it and the planet are each equal to  $6''$ . The apparent thickness of the ring is about  $1''$ ; which makes its real thickness equal to the radius of the earth; for this radius, which at the Sun would subtend an angle of nearly  $9''$ , would at the distance of Saturn subtend an angle of  $1''$ .

When this ring is observed with very powerful telescopes, several dark and extremely delicate concentric circles are perceived on its surface, which apparently divide it into several parallel rings, all detached from each other. Herschel is of opinion that two of these rings may be distinctly perceived.

To determine the relative position of the ring with respect to the Sun and the Earth, it is necessary to ascertain the situations of its nodes, or the points where its plane cuts the ecliptic; and these would be easily obtained, if the instant in which the ring disappears, by its plane passing through the centre of the Earth;

were found; for then both Saturn and the Earth would be in this plane; and as the inclination of the ring to the ecliptic is already known, the positions of these two bodies at that instant would be sufficient for determining its nodes. But, as the passage of the plane through the Sun occasions the ring to disappear, as well as its passage through the centre of the Earth, these passages must be distinguished by an examination of the periods in which they take place. The passages through the Sun depend only upon the motion of the Sun and that of Saturn; but those through the Earth depend also upon the motion of the Earth about the Sun.

These disappearances and reappearances of the ring succeed each other very exactly, and in the same order, during each sidereal revolution of Saturn: it is therefore concluded, that they result from the passage of its plane through the Sun. The following epochs, in which these phenomena have been observed, are extracted from the work of *Dionis Séjour*, on the ring of Saturn: they must, however, be regarded only as approximations to the truth; for the very slow manner in which the ring both disappears and reappears, renders it impossible to determine the instant of its passage through either the Earth or the Sun with accuracy.

1715, February 5th,	- - - - -	reappeared
1730, November 10th,	- - - - -	disappeared
1744, July - 23d,	- - - - -	disappeared
1760, April - 25th,	- - - - -	reappeared
1774, January - 9th,	- - - - -	reappeared
1789, October - 1st,	- - - - -	disappeared
1803, June - 18th,	- - - - -	disappeared.

If, to the epoch of 1715, there be added the sidereal revolution of Saturn, or 29 Julian years and 166.827213 days, we shall have exactly the epoch of 1744; and those of 1774 and 1803 may be deduced in the same manner. The epoch of 1730 gives, in the same way, those of 1760 and 1789.

This agreement is too exact to be attributed to



chance, and evidently indicates the law which these phenomena follow; and, their return being independent of the Earth's motion about the Sun, they must be referred to the passage of the plane of the ring through the centre of that body. Then, since these phenomena form two distinct series, which proceed through the same periods, but of which the epochs are different, they evidently refer to the two opposite situations in which the plane of the ring ought to meet the Sun in each revolution.

But as, in each series, the passages always return after a complete revolution of Saturn, it follows that the two situations of the ring answer to the same positions of that planet; that is, that the plane of the ring remains constantly parallel to itself upon the orbit of Saturn, and consequently its path upon the plane of the ecliptic ought always to make a constant angle with the path of the orbit.

By examining the preceding epochs of the Sun's passage through the nodes of Saturn's ring, it is evident that the periods between their occurrence are not of equal duration. Between the epoch of 1715 and that of 1730 there is 15 years and 9 months; but between those of 1730 and 1744, there is only 13 years and 8 months. The same is also observed for the other terms. This difference arises from the eccentricity of Saturn's orbit; for if a plane were drawn through the centre of the Sun, and perpendicular to the plane of the ring, it would determine these nodes, and would also divide the orbit of Saturn into two unequal parts, the one containing the perihelion and the other the aphelion of the planet. This body, therefore, passed through its aphelion between 1715 and 1730; and through its perihelion between 1730 and 1744.

It would be easy to predict all the appearances of Saturn's ring, if the epochs of its plane passing through the centre of the Earth were only known, as those are for the centre of the Sun. But the an-

nual motion of the Earth imparts a greater degree of difficulty to this determination. In order to accomplish this, it is necessary to find a number of sidereal revolutions of the planet which corresponds either exactly, or very nearly, with an exact number of sidereal years. By taking the ratio of these periods, or dividing the one by the other, we shall have

$$\frac{1058.96984}{365.256364};$$

and by reducing this fraction to lower terms, we find the first approximative values are  $\frac{4}{9}$  and  $\frac{22}{11}$ ; the other nearer values give very long periods.

The first of these fractions indicates that, in 59 sidereal years, there would be nearly two complete revolutions of Saturn; for if the duration of these two periods be calculated exactly, it will be found that the first exceeds the second by 32.185796 days: hence, after a period of 59 sidereal years, Saturn is this time in advance of the Sun. From the known velocities of the Sun and Saturn in their orbits, it is easy to ascertain the number of days which must be added to the 59 years, to bring the two bodies into the same relative position.

For, let  $R$  denote the sidereal revolution of Saturn, and  $r$  that of the Sun,  $d$  the difference, equal to 32.185796 days, and  $x$  the number of days to be added to the 59 years, to bring the Sun and Saturn into the same relative position; then, in the time  $d$ , Saturn will evidently describe an arc equal to

$$\frac{360^\circ d}{R};$$

in the time  $x$  he will describe an arc equal to

$$\frac{360^\circ x}{R};$$

and in the same interval the Sun will describe an arc equal to

$$\frac{360^\circ x}{r}.$$

Therefore we shall have, by equality,

$$\frac{360x}{R} + \frac{360d}{R} = \frac{360x}{r}.$$

By dividing by  $360^\circ$ , we obtain

$$\frac{x+d}{R} = \frac{x}{r};$$

from which we have

$$x = \frac{dr}{R-r} = \frac{32.185796 \times 365.256364}{10758.96984 - 365.256364} = 1.1311$$

day, the time which must be added to the 59 sidereal years, to bring the Sun and Saturn to the same relative position as at the commencement of that period.

The period given by the fraction  $\frac{32}{11}$  is much more exact; it shows that, in 324 sidereal years, Saturn will have very nearly completed 11 revolutions: the difference is only 5.606304 days, which Saturn is found *behind* the Sun. By following the same method of calculation as above, we shall find

$$x = \frac{-dr}{R-r} = -.19697 \text{ day};$$

which is therefore the time that must be *subtracted* from 324 years, to bring the two bodies into the position in which they were at the commencement of that period. These calculated periods also agree very accurately with the results of observation.

Some spots have been observed on the surface of the ring, by which its rotary motion has been ascertained. This rotation is completed in the same time as that of the planet, and about the same axis, which is perpendicular to the plane of the ring. This rotation presents one remarkable circumstance. If we conceive a satellite to revolve about Saturn at the distance of the middle of the ring, and calculate the time of its sidereal revolution by the third law of Kepler, it will

be found to be precisely the same as that of the ring. For, if we take the first satellite of Saturn, and compare its revolution with that of the ring, we have its mean distance from the planet equal to 3.08, and the mean distance of the ring equal to  $1 + \frac{2}{3} + \frac{1}{3} = 2$ , the radius of Saturn being taken for unity. Then, since the squares of their times of revolution are as the cubes of their mean distances, and .9427 of a day is the time of one sidereal revolution of the satellite, we shall have for that of the ring

$$.9427 \sqrt{\frac{2^3}{(3.08)^3}} = .49,$$

which differs very little from that given by observations. This circumstance completely explains the manner in which the ring is supported about the planet without being in contact with it; or at least brings it to the general cause which sustains all the satellites, as well as the planets, in their orbits. This will also hold equally if the ring consists of two or more parts, as is generally supposed.—See *Biot's Astronomie Physique*, tome troisième.

The following dimensions of Saturn's rings (supposing them to be two), in English miles, are given by Dr. Herschel, as the result of his observations : viz.—

	Eng. Miles.
Inside diameter of the smaller ring - - - -	146345
Outside diameter - - - - -	184393
Inside diameter, larger ring - - - - -	190248
Outside diameter - - - - -	204883
Breadth of inner ring - - - - -	20000
Breadth of outer ring - - - - -	7200
Breadth of the space between the rings - -	2839
Thickness of the ring - - - - -	4500

# The Naturalist's Diary

For AUGUST 1819.

O'er fields embrowned, lo! AUGUST slowly bends!  
And yellow Plenty, smiling, gilds the land;  
The hills re-echo with the reaper's song.

THE powerful influence of the solar rays now contributes to ripen the various sorts of grain, which are benevolently given for the food of man and cattle. Fine weather is very desirable, that the principal source of the farmer's wealth may be safely housed; for sudden storms beat down the nearly ripened corn, and materially injure it. The utmost diligence is now exerted, and labourers from all parts are eagerly engaged to give their assistance in this delightful occupation; all is bustle and activity. The following is a genuine picture of Nature in this month, drawn with an uncommon degree of minuteness and fidelity:—

Now Noon gone by, and four declining hours,  
The weary limbs relax their boasted powers;  
Thirst rages strong, the fainting spirits fail,  
And ask the sov'reign cordial—*Home brewed Ale!*  
Beneath some sheltering heap of yellow corn  
Rests the hooped keg, and friendly cooling horn,  
That mocks alike the goblet's brittle frame,  
Its costlier potions and its nobler name!  
To Mary first the brimming draught is giv'n,  
By toil made welcome as the dews of Heav'n;  
And never lip that pressed its homely edge  
Had kindlier blessings or a heartier pledge!

R. BLOOMFIELD.

The harvest, to be viewed in perfection, should be seen in one of those extensive parishes which are as yet uninclosed. When 'the fields are white with harvest,' they exhibit a rich expanse 'of wavy corn' of every hue, from the white of the oat and barley, to the golden red of the wheat. It is a scene of repose, interrupted only by the breezes and the billowing of

the corn. When the reapers enter, all becomes life and motion. They are seen in all directions, reaping, sheafing, and shocking, with the haste suitable to so important a season. The mowers also take their turn at the barley and the oats. The carts and waggon then enter the field with speed, but leave it piled up with sheaves of wheat, or loads of loose corn, with a slow and stately pace, looking, at a distance, like a ship sailing over the ocean. The masters and tything-men are seen riding about in all directions, and groupes of men reposing at their meals, or their refreshment of beer. The women and children then enter as gleaners, and in the evening return with their loads upon their heads :

Light as thistle-down moving, which floats in the air,  
Sweet gratitude's debt to my cottage I bear:  
Of Autumn's rich store I bring home my part,  
The weight on my head, but gay joy in my heart.

ROSINA.

The rich splendour of the sun-set, the solemn gloom of the twilight, and the sober brightness of the harvest moon, are fresh occasions of admiration and gratitude.

Wheat, oats, barley, and other corn, are of the class *triandria*, and order *digynia*, having in each flower three stamina and two pistilla. Many flowers are collected into a spike, called an ear of corn : the stamina are seen projecting, and the antheræ freely playing in the air, when the corn is in full ear ; but, to ascertain its botanical character, a single flower should be carefully separated from the rest. Of wheat, there are ten distinct species, cultivated in different parts of the world, and most of them in Britain ; and of each of these species there are several varieties, which may, with care in the cultivation, be preserved perfectly distinct. What a field is here open to any intelligent experimental farmer ! we shall only mention a few of such as are most frequently met with.

1st. *Winter wheat*, which is the most common in this country, and is said to yield the most flour, but requires strong and rich land. Of this there are three varieties; all destitute of beards, or having very minute ones. One has a red ear and grain; a second, white ears; and the third, white ears and grains: the other particular qualities of these varieties remain to be discovered.

2d. *Spring or summer wheat*, which requires to be sown in February or March, and is suited to lighter soils. Of this there are also three varieties, bearing similar distinctive marks to those of the winter wheat.

3d. *Cone wheat*. Bearded ears, thick grains, small, plump, and more convex on the back. The varieties are four; the white, red, large-bearded and many-eared cone wheat.

4th. *Polish wheat*; much larger than the others, leaves white-striped. Very fruitful, and yielding abundance of flour.

5th. *Spelt* or *German wheat*, much resembles barley; will grow in stoney soils and mountainous countries, where other wheat will not. Makes excellent starch.

Switzerland spring wheat ripens a fortnight sooner than others. Egyptian wheat is uncommonly fruitful, though not fine; and affords very good flour.

Wheat, as containing the largest quantity of farina or meal, and that of the best quality for making bread and pastry, is by far the most commonly used of any kind of corn; but for the purposes of making starch, or hair-powder, other vegetables may and ought always to be substituted.

Next to wheat, barley and oats are considered as the best articles for bread, and are in certain situations the principal food of the poor; as in the north of Scotland, and some of the northern counties of England. Barley is likewise consumed in large

quantities, in making malt liquors and ardent spirits ; as oats are for feeding horses ; and both for the feeding and fattening of cattle, swine, and poultry. Barley, when deprived of its husk and external cortical part, by grinding in a peculiarly constructed mill, is called pearl-barley. Both in this state, and in the state of barley-meal, it is used in broths, porridge, &c. as food for the lower classes<sup>1</sup>.

About the 11th of August, the puffin (*alca arctica*) migrates. Priestholme, or Puffin's Island, about three quarters of a mile from the Isle of Anglesea, abounds with these birds ; and their flocks, for multitude, may be compared to swarms of bees.

In the middle of the month, the swift disappears, and probably migrates to more southern regions. Rooks begin to roost in their nest trees, and young broods of goldfinches<sup>2</sup> (*fringilla carduelis*) appear ; lapwings (*tringa vanellus*) and linnets (*fringilla linota*) congregate ; the nuthatch chatters ; and, towards the end of the month, the redbreast is again heard.

At the beginning of August, melilot (*trifolium officinale*), rue (*ruta graveolens*), the water parsnip (*sysimbrium nasturtium*), horehound (*marrubium vulgare*), water-mint (*mentha aquatica*), the orpine (*sedum telephium*), and the gentiana amarella, have their flowers full blown. The purple blossoms of the meadow saffron (*colchicum autumnale*) now adorn the low moist lands. The number of plants in flower, however, is greatly lessened in August, those which bloomed in the former months running fast to seed. We may now apostrophise the 'Spring' in the language of the poet :—

Sweet Spring ! amid forgotten things  
Thou and thy smiles must sleep : thy little lambs  
Dead, or their nature changed ; thy hymning birds  
Mute ;—faded every flower so beautiful ;—

<sup>1</sup> Skrimshire's Essays on Natural History, p. 127.

<sup>2</sup> See the 'Goldfinches, an Elegy,' in our last volume, p. 158.



And all fair symptoms of incipient life  
To fulness swollen, or sunk into decay!

Yet we are continually reminded of the bounty of our Creator; though the *flowers of spring*, and the lovely rose<sup>1</sup>, are no more, the *fruits* of summer and of autumn now pour in their abundant stores.

Heaths and commons are now in all their beauty; the flowers of the various species of heath (*erica*) covering them with a fine purple hue. Ferns also begin to flower, the commonest sort of which is the fern or brakes (*polypodium filix-mas*); but the female (*pteris aquilina*) is the most beautiful plant.

Insects still continue to swarm; they sport in the sun from flower to flower, from fruit to fruit, and subsist themselves upon the superfluities of nature.

It is not the *air* only that abounds with insects at this season; *ditches* and stagnant *pools of water* are equally prolific of them. One of those most commonly found in these haunts, is the *monoculus apus*, and is an excellent subject for the microscope. Some account of an examination of one by the aid of this powerful instrument will be found in our last volume, p. 242.

That beautiful little insect, the *lady-bird*, or lady-cow, now seen, and so often charged with being the cause of blights in apple-trees, is in reality the best remedy against that disease. The lady-bird, both when perfect and in its larva state, feeds entirely upon the *aphis*, a genus of which the blight in question is a species. The utility of this insect, in destroying the blight, is well known in the hop-countries. See a

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<sup>1</sup> For some beautiful lines to the Rose, by Waller, see our last volume, p. 240. The following additional stanza is from the pen of Kirke White:—

Yet, though thou fade,  
From thy dead leaves let fragrance rise,  
And teach the maid,  
That goodness Time's rude hand defies,  
And *Virtue* lives when *beauty* dies.

pretty little poem on the Lady-bird, in the very interesting 'Conversations on Natural History,' before quoted, vol. i, p. 10.

The harvest-bug (*acarus ricinus*), in this and the following month, proves a very troublesome and disagreeable insect ; particularly in some of the southern counties of England. The best cure for the bite is hartshorn. Flies now abound, and torment both men and animals with their perpetual buzzing.

So have I seen ere this a silly flie  
With mastif dog in summer's heate to play,  
Sometime to sting him in his nose or eie,  
Sometime about his grizly jawes to stay,  
And buzzing round about his eares to flie,  
He snaps in vaine, for still she whips away ;  
And oft so long she dallies in this sort,  
Till one snap comes and marreth all her sport.

ARIOSTO, *by* HARRINGTON.

Wasps and hornets become, in this and the succeeding month, very annoying to us in our rural walks. They resemble the bee by living in societies, making very ingeniously the nests where they raise their young ; but in elegance of taste, and delicacy of manners, these are very inferior. They live on fruit, meat, and even on other insects. The author who writes under the name of Hector St. John, an American farmer, relates that, in America, it is very common to suspend a hornet's nest in the middle of the ceiling of a room where the family live, that these insects may relieve them from the great number of flies with which the houses are infested, and that it is usual for the hornets to settle on the faces of children, with no other intention than to carry away the flies ; while the children, accustomed to them, express no fear, and never are stung. These hornets, and their near relations, the wasps, are great enemies of the bees, not only by stealing their honey, but because they kill the industrious labourers themselves. In the vast woods of America there are wild bees,

that make great quantities of honey in the hollows of trees, and the settlers and Indians are guided to these treasures by a bird who knows where they are deposited.

The common *glow-worm*, 'the little planet of the rural scene,' may be observed in abundance in the month of August, when the earth is almost as thickly spangled with them as the cope of heaven is with stars. The glow-worm, like the cricket, lady-bird, and many other insects, makes but little use of its wings; for they are seldom seen on any situation more elevated than the summit of a barley-ear, or a stunted furze-bush; but are generally found on banks under hedges, and sometimes in the interstices of rugged elm-roots and the foundations of buildings. We cannot refuse to enrich our pages with the following pretty sonnet from the pen of the poetess whom we have so often mentioned with pleasure:—

If on some balmy-breathing night of Spring  
The happy child, to whom the world is new,  
Pursues the evening moth of mealy wing,  
Or from the heath-flower beats the sparkling dew,  
He sees, before his inexperienced eyes,  
The brilliant *glow-worm* like a meteor shine  
On the turf bank: amazed and pleased he cries,  
'Star of the dewy grass, I make thee mine!'  
Then, ere he sleeps, collects the moistened flower,  
And bids soft leaves his glittering prize enfold,  
And dreams that fairy lamps illumine his bower;  
Yet with the morning shudders to behold  
His lucid treasure, rayless as the dust.  
So turn the world's bright joys to cold and blank disgust'.

The solitary bee (*apis manicata*), and the white moth (*phalæna pacta*), are observed in this month: the *ptinus pectinicornis* also makes its appearance. The larvæ of this insect are very destructive to wooden furniture, boring holes in tables, chairs, bed-posts,

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\* 'Conversations on Natural History,' by Charlotte Smith, vol. i, p. 59.

&c.;—they are much inclined to lay their eggs in beech, hence this wood is less fit for the manufacture of domestic utensils. If their eggs are deposited on the surface, frequent rubbing will preserve wooden furniture.

The southern counties of England, particularly Surrey and Kent, now yield their valuable produce of *hops* in this month. The common hop (*humulus lupulus*) is propagated either by nursery plants, or by cuttings.

The hop is a most valuable plant: in its wild state it is relished by cows, horses, goats, sheep, and swine. When cultivated, its young tops are eaten, early in the spring, as substitutes for asparagus, being wholesome and aperient. Its principal use, however (could brewers be made honest), is in brewing malt liquors, communicating that fine bitter flavour to our beer, and making it keep for a longer time than it otherwise would do. Hops also serve some important purposes in medicine.

The heat of this month is *sometimes* excessive, and we are then led to exclaim with the poet of nature,

Welcome, ye shades! ye bowery thickets, hail!  
Ye lofty pines! ye venerable oaks!  
Ye ashes wild, resounding o'er the steep!

and, regarding coolness and freshness as indispensable to the enjoyment of Nature's bounties at this season, those who are confined in large cities luxuriate themselves with the 'frequent ice,' and employ every means in their power to cool the various liquors, which the heat renders necessary to relieve the 'parched and fevered lip' of thirst. To such, as well as to our country readers, we recommend the following observations on 'cooling liquors,' chiefly from the 'Chemical Essays' of Mr. Parkes.

The most antient, and perhaps the most universal, mode of reducing the temperature of bodies, was by means of *ice* and *snow*. That these were used for this

purpose in the time of Solomon, we have the testimony of some of the most antient writings; and we are told that Alexander the Great, when he lay before the besieged city of Petra, having an eye to the delicacies of his table, caused thirty trenches to be dug, and filled with snow, which was defended from the sun by oak branches, and preserved for a long time.

The snow of Lebanon was in high estimation in the days of the prophet Jeremiah; and, according to Mr. Harmer, the present inhabitants of Palestine collect snow during the summer months from the top of the same mountain, and carry it two or three days journey, 'that being (as he says) mixed with wine, it may keep it as cold as ice<sup>1</sup>.

The practice of cooling liquors at the tables of the great was not usual in any country of Europe, excepting in Italy and the neighbouring states, before the end of the sixteenth century; and there is a direct testimony on record, that in the middle of that century there were no ice-cellars in France. However, before the end of the seventeenth century, the luxury of ice was very common in France; for about that time there were many persons who were professed dealers in snow and ice; and in 1676 there were not less than two hundred and fifty shops in Paris alone for the sale of liquors of different sorts cooled with ice.

An ice-house, it is probable, might be employed with advantage during the summer months in preserving meat. We know that from the salmon fisheries in Scotland and the north of England, the fish are sent to the metropolis, during the greater part of the season, packed with ice, in boxes about four feet long and eighteen inches deep. When packed, the ice, which is previously broken as small as bay-salt, is put over them, and beaten down as hard as can be without

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<sup>1</sup> 'As the cold of snow in the time of harvest, so is a faithful messenger to them that send him: for he refresheth the soul of his masters.'—Proverbs xxv, 13.

bruising the salmon. In this manner they are kept perfectly fresh for two or three weeks.

Another way of modifying heat is by the use of certain saline bodies. Towards the latter end of the 17th century, Mr. Boyle made experiments with various kinds of salts and other substances for reducing the temperature of water, and in the year 1683 published his 'Experiments and Observations touching Cold;' a work of great labour and ingenuity. By these researches he discovered that either common salt, alum, vitriol, sal ammoniac, lump-sugar, oil of vitriol, nitrous acid, caustic ammonia, or alcohol, when mixed with snow, had the power of freezing water, and thus laid the foundation for the modern discoveries on frigorific mixtures.

About this time the use of a mixture of snow and common salt had become very common in several countries in Europe; but a long period intervened before any facts of importance were added to those which Mr. Boyle had published on this subject.

The art of making ice was for many years practised only as an amusement, and no one suspected that it would ever be applied to such important purposes, both of science and luxury. Like gunpowder, and many other valuable discoveries, it was at first considered to be of very trifling consequence.

In the beginning of the seventeenth century, however, drinking-cups made of ice<sup>1</sup>, and iced fruits, were brought to table; and before its conclusion the French began to congeal all kinds of well-tasted juices, which were served up as refreshments at the tables of the great and wealthy.

In the year 1621, Barclay's *Argenis*, an interesting romance, was published at Paris; and its author places on the table of Juba, in the middle of summer, fresh apples for Arsidas, one half of which were incrustated

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<sup>1</sup> Very easy and simple directions for making ice-cups for drinking of wine in summer, will be found in Mr. Boyle's *History of Cold*, title xiv, page 137.

with transparent ice. A bason of ice filled with wine was also handed to him, and he was informed that to prepare all these things in summer was a new art.

A few years after the publication of the book just mentioned, a new beverage was introduced, called *lemonade*, which soon came into high repute, and was recommended by physicians against putrid diseases. About the year 1660 an Italian from Florence, having learnt a process of freezing confectionary, which had been before employed only by jugglers, conceived the happy idea of converting such beverage entirely into ice. This found a ready sale, and was the occasion of so great an increase in the number of sellers of *lemonade*, that, in the year 1676, the *lemonadiers* of Paris were formed into a company, and received a patent from the government.

In the beginning of the next century, the principle of congealing water by the mixture of salt or nitre with ice and snow was so well known, that it was then become, in Paris and elsewhere, a common amusement for children, who had a trick of placing a jug containing a mixture of snow and saltpetre on a table over which water had been poured, and agitating the mixture with a stick, till the jug became firmly frozen to the table<sup>1</sup>.

Towards the end of the month, the wild orach (*chenopodium album*), the wild clary (*salvia verbenaca*), the sweet gale (*myrica gale*), the golden rod (*senecio paludosus*), the milk-thistle (*carduus marianus*), and ladies-traces (*ophrys spiralis*), have their flowers in full bloom.

Several *maritime* plants flower this month ;—glass-wort (*salicornia herbacea*), and grass-wrack (*zostera marina*), on sea-coasts ; the samphire (*crithmum maritimum*), and the *asparagus officinalis*, among

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<sup>1</sup> See Mr. Parker's Chemical Essays, vol. i, p. 239 ; Rees's Cyclopædia, art. *Cooling of Liquors* ; and Beckmann's History of Inventions, vol. iii.

rocks. On *sandy shores* may be seen the sea campion, or catchfly (*silene maritima*), sea spurge (*euphorbia paralia*), and lavender cotton (*santolina maritima*). On *sea shores* are found the sea-stock (*cheiranthus sinuatus*), and sea wormwood (*artemisia maritima*).

In this, and the succeeding month, much knowledge may be gained of marine plants, shells, &c. &c., by those who visit the sea-coast. The healthful amusement of wandering over the sands or beach, and among the caverns of our sea-girt isle, may easily be rendered improving to the mind, as well as the body, by bringing us acquainted with the great Author of Nature, in the *apparently* most insignificant, but wonder-fraught, works of his almighty hand. See an interesting narrative of the examination of some shell-fish (*echini marini*) in our last volume, p. 250.

The best *live shells* are collected by means of a trawling-net, such as are used by fishermen, if the depths will permit; they are also brought up by the cable in weighing anchor, and the log-line in sounding. After a storm, good shells may be picked up on the sea beaches, or shores, as the violent agitation of the water in a tempest separates them from their native beds, and often casts them on the shore; but such as have been exposed for some time to the heat of the sun, or beaten by the waves, are of little value, as their colours will be faded, and the shells worn and broken: choose, therefore, always such shells as lie in the deepest parts of their resorts and under water, whether taken up by the drag-net, from the sides of rocks, or bottoms of ships, &c. Pilchards are taken in great quantities in this month.

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INSCRIPTION for a TABLET on the BANKS of a STREAM.

Stranger! awhile upon the mossy bank  
Recline thee. If the sun rise high, the breeze,  
That loves to ripple o'er the rivulet,  
Will play around thy brows, and the cool sound



Of running waters sooth thee. Hark ! how clear  
 It sparkles o'er the shallows, and behold  
 Where o'er its surface wheels, with restless speed,  
 Yon glossy insect ; on the sand below  
 How the swift shadow flies. The stream is pure  
 In solitude, and many a healthful herb  
 Bends o'er its course, and drinks the vital waves ;  
 But, passing on amid the haunts of man,  
 It finds pollution there, and rolls from thence  
 A tainted tide. Seek'st thou for happiness ?  
 Go, Stranger ! sojourn in the woodland cot  
 Of innocence ! and thou shalt find her there.

SOUTHEY.

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## SEPTEMBER.

SEPTEMBER is composed of *septem*, seven, and the termination *ber*, like *lis* in *Aprilis*, *Quintilis*, *Sex-tilis*. This rule will also apply to the three following months, Octo-ber, Novem-ber, Decem-ber. Our Saxon ancestors called it *Gerst-monat*, 'for that barley which that moneth commonly yeilded, was antiently called gerst.'

## Remarkable Days

In SEPTEMBER 1818.

### I.—SAINT GILES.

GILES, or Ægidius, was born at Athens, but, after he had disposed of his patrimony in charitable uses, came to France in the year 715. He lived two years with Cæsarius, Bishop of Arles, and afterwards retired into solitude. Charles Martel, when hunting, found him in his hermit's cell, and, pleased with his unaffected piety and sanctity of manners, erected an abbey for him at Nismes, of which he was consituted abbot. He died in the year 795.

### \*1. 1715.—LOUIS XIV DIED.

The age of Louis XIV will always be a memorable period in history, and his personal character, as great-

ly influencing its events, will continue to be an interesting object of speculation. Yet he had none of the commanding qualities which create a nation or an æra, and would not have been distinguished from common princes under common circumstances. His natural good sense, and sedateness, would have made him respectable, though not brilliant, in an inferior situation; and it may be said in alleviation of his faults, that never was any man more exposed to moral perversion by a bad education, and the extravagant flattery of a whole people, who indulged their own vanity in deifying their monarch. He was perpetually told that he was the greatest of all mortals, and he believed it; he saw every thing bowing at his feet, and he thought that his *will* ought to be the sole law on earth. That he was not an insupportable tyrant could only be owing to something radically good in his disposition. His nation made great advances in his reign, for which, however, it was no further obliged to him, than as he was a general encourager of every thing which could contribute to his own glory. One of his ablest panegyrists has summed up his character by saying, that, if he was not a great king, he was at least a great actor of royalty. His plan of pensioning all the eminent men of letters throughout Europe, secured to him, at a very small expense, more erudite adulation than any prince in modern times has received.

## 2.—LONDON BURNT.

The fire of London broke out on Sunday morning, September 2d, 1666, O.S.; and being impelled by strong winds, raged with irresistible fury nearly four days and nights; nor was it entirely mastered till the fifth morning after it began. This most destructive conflagration commenced at the house of one Farryner, a baker, in Pudding lane, near [New] Fish-street Hill, and within ten houses of Thames-street, into which it spread in a few hours; nearly the whole of the contiguous buildings being of timber, lath, and plaster, and the whole neighbourhood presenting

little else than closely confined passages and narrow alleys. The fire quickly spread, and was not to be conquered by any human means.

The immense property destroyed in this dreadful time cannot be estimated at less than *ten millions* sterling. Amid all the confusion and multiplied dangers that arose from the fire, it does not appear that more than six persons lost their lives. Calamitous as were the immediate consequences of this dreadful fire, its *remote effects* have proved an incalculable blessing to subsequent generations. To this conflagration may be attributed the complete destruction of the PLAGUE, which, the year before only, swept off 68,590 persons!! To this tremendous fire we owe most of our grand public structures—the regularity and beauty of our streets—and, finally, the great salubrity and extreme cleanliness of a large part of the city of London. For an interesting account of this fire, written by an eye-witness, see T. T. for 1816, p. 249-258.

#### 7.—SAINT EUNERCHUS.

Eunerchus, or Evortius, was Bishop of Orleans, and present at the council of Valentia, A.D. 375. The circumstances of his election to this see were considered as miraculous, and principally ascribed to a dove, which alighted upon his head in consequence of the prayers of the electors. Other wonderful effects of his own prayers are attributed to him; such as extinguishing fire in the city almost instantaneously; finding a large pot of gold, which had long lain concealed under the ruins of a church, and which proved nearly sufficient to defray the expenses of rebuilding it; the conversion of 7000 infidels in the space of three days only; and, lastly, foretelling not only the time of his own death, but nominating a successor in the person of Arianus.

#### 8.—NATIVITY OF THE VIRGIN MARY.

A concert of angels having been heard in the air to solemnize this important event, the festival was appointed by Pope Servius about the year 695.

Innocent IV honoured this feast with an octave in 1244, and Gregory XI, about the year 1370, with a vigil.

**\*9. 1087.—WILLIAM RUFUS BEGAN TO REIGN.**

He seems to have been a violent and tyrannical prince; a perfidious, encroaching, and dangerous neighbour; an unkind and ungenerous relation. He was equally prodigal and rapacious in the management of the treasury: and, if he possessed abilities, he lay so much under the government of impetuous passions, that he made little use of them in his administration; and he indulged entirely the domineering policy which suited his temper, and which, if supported, as it was in him, with courage and vigour, proves often more successful in disorderly times, than the deepest foresight and most refined artifice. The monuments which remain of this prince in England are, the Tower, Westminster Hall, and London Bridge, which he built.—(*Hume.*)

**\*13. 1595.—PHILIP II OF SPAIN DIED.**

While the Protestants have universally execrated his memory as a persecutor, while the Low-countries have regarded him as a tyrant, and the French as a crafty and unfeeling politician, his subjects of Spain have decorated him with the title of the *Prudent*, and have honoured him for his gravity, sedateness, magnificence, and attachment to religion. He had the sagacity to discover and employ men of abilities; he was a friend to learning and the arts, and in many respects his domestic administration was laudable: nor was he ever wantonly cruel, though he shrunk at no severity which he thought necessary for his purposes. But his boundless ambition and bigoted prejudices rendered his whole reign a period of war and contention, and wasted the vast resources which he possessed, without effecting any of the great objects at which he aimed. In fact, the Spanish monarchy dates its decline from his reign.

## 14.—HOLY CROSS.

This festival was first observed in the year 615, on the following occasion: Cosroes, King of Persia, having plundered Jerusalem, carried away large pieces of the cross which had been left there by the Empress Helena. Heraclius, the emperor, soon afterwards engaged and defeated him, and recovered the cross: but, bringing it back in triumph to Jerusalem, he found the gates shut against him, and heard a voice from heaven saying, that the *King of Kings* did not enter into that city in so stately a manner, but *meek and lowly, and riding upon an ass*. The emperor then immediately dismounted from his horse, and walked through the city barefooted, carrying the cross himself. The *holy-rod*, or cross, when perfectly made, had not only the image of our Saviour extended upon it, but the figures of the Virgin Mary and St. John, one on each side; in allusion to John xix, 26,—‘*Christ on the cross saw his mother, and the disciple whom he loved, standing by.*’

## 17.—SAINT LAMBERT.

Lambert was Bishop of Utrecht, in the time of King Pepin I; but, reproving the king's grandson for his irregularities, he was cruelly murdered at the instigation of an abandoned woman. Being canonized, he obtained, at first, only a simple commemoration in the calendar; but Robert, Bishop of Leeds, in a general chapter of the Cistercian order, procured a solemn feast to his honour in the church in 1240.

## \*20. 1808.—COVENT GARDEN THEATRE BURNED.

## 21.—SAINT MATTHEW.

In the year 64 or 65, Matthew wrote his Gospel in Hebrew, which was afterwards translated into Greek. After many labours and miracles, he closed his life at Nadabar in Ethiopia, probably by martyrdom.

## \*21. 1558.—EMPEROR CHARLES V DIED.

Towards the close of his life, an illiberal and timid superstition depressed his spirit. He had no relish

for amusements of any kind. He endeavoured to conform in his manner of living to all the rigour of monastic austerity. He desired no other society than that of monks, and was almost continually employed with them in chanting the hymns of the Missal. As an expiation for his sins, he gave himself the discipline in secret with such severity, that the whip of cords which he employed as the instrument of his punishment was found, after his decease, tinged with his blood. Nor was he satisfied with these acts of mortification, which, however severe, were not unexampled. The timorous and distrustful solicitude which always accompanies superstition still continued to disquiet him, and, depreciating all the devout exercises in which he had hitherto been engaged, prompted him to aim at something extraordinary, at some new and singular act of piety that would display his zeal, and merit the favour of heaven. The act on which he fixed was as wild and uncommon as any that superstition ever suggested to a weak and disordered fancy. *He resolved to celebrate his own obsequies before his death.* He ordered his tomb to be erected in the chapel of the monastery. His domestics marched thither in funeral procession, with black tapers in their hands. He himself followed in his shroud. He was laid in his coffin, with much solemnity. The service for the dead was chanted, and Charles joined in the prayers which were offered up for the rest of his soul, mingling his tears with those which his attendants shed, as if they had been celebrating a real funeral. The ceremony closed with sprinkling holy water on the coffin in the usual form, and, all the assistants retiring, the doors of the chapel were shut. Then Charles rose out of the coffin, and withdrew to his apartment, full of those awful sentiments which such a singular solemnity was calculated to inspire. But either the fatiguing length of the ceremony, or the impression which the image of death left on his mind, affected him so much, that next day

he was seized with a fever. His feeble frame could not long resist its violence, and he expired on the above day, in the 59th year of his age.—See a full character of this emperor in Robertson's History, vol. iv, p. 285.

22.—CORONATION OF KING GEORGE III.

His present Majesty was crowned on the 22d of September, 1761. The form of the oath, and the manner of taking it, may be seen in T. T. for 1814, p. 228-230.

\*25. 1680.—SAMUEL BUTLER DIED.

The celebrated author of *Hudibras*, whose life passed in a mist of obscurity, but whose name can only perish with his language. The mode and place of his education are unknown; the events of his life are variously related; and all that can be told with certainty is, that *he was poor*.

\*25. 1764.—ROBERT DODSLEY DIED.

Without the advantage of a liberal education, he acquired a taste for literature which brought him into notice, when in the station of *footman* to a lady of fashion. His 'Toy Shop' introduced him to the notice of Pope, who took the author under his protection: the money he acquired by this drama enabled him to commence the trade of a bookseller, and, in a few years, he became one of the most considerable persons in this business, and realized a handsome fortune. He is now chiefly known by his 'Economy of Human Life:' his Poems have undeservedly sunk into oblivion. His 'Agriculture' contains much pleasing description, extracts from which will be found in our last year's volume.

\*25. 1808.—RICHARD PORSON DIED.

The principal qualities, says one of his biographers, in this great man's mind, were his extraordinary acuteness of discernment and solidity of judgment; and these, added to his intense application and stupendous memory, made him, what the world perhaps never saw before, a complete critic in the most

honourable and extended sense of that appellation. His reading was immense: he was an excellent French scholar; but in his native language, in the Latin, and the Greek, he was most familiarly and profoundly versed. He had, indeed, applied the knowledge which he had gained of the origin and structure of language in general to all these dialects, if we may so express ourselves, of the universal language; and had not his eminence in classical literature, by its uncommon lustre, obscured other attainments, he would doubtless have been considered as one of the first English scholars. In *Greek*, however, we have no hesitation in pronouncing him the very first, not merely of his own age, but of every other. In him were conspicuous, boundless extent of reading, an exact and well ordered-memory, and unwearied patience in undergoing continued toil. Of this last quality, the following is an eminent example. He had undertaken to make out and copy the almost obliterated MS. of the invaluable *Lexicon of Photius*, which he had borrowed from the library of Trinity College, Cambridge. And this he had, with unparalleled difficulty, just completed, when the beautiful copy, which had cost him ten months of incessant toil, was burned, along with the house of Mr. Perry, at Merton. The original being an *unique*, entrusted to him by the college, he carried with him wheresoever he went, and he was fortunately absent from Merton on the morning of the fire. Unruffled by the loss, he sat down without a murmur, and made a second copy as beautiful as the first; which is now in Trinity College Library! Many of Porson's small pieces and 'trifling levities,' such as charades, &c. may be found appended to the second volume of the very entertaining *Sexagenarian*, by the late Rev. Mr. Beloe.

26.—OLD HOLY ROOD. See HOLY CROSS, p. 220.

26.—SAINT CYPRIAN.

He was an African by birth, of a good family and



well educated. Before his conversion he taught rhetoric ; but by the persuasion of Cæcilius, a priest, he became a Christian. He gave all his property to the poor ; and was elected Bishop of Carthage, A.D. 248. He behaved with great courage and resolution in the Decian persecution, and openly invited the people to constancy and perseverance : this conduct so enraged the Pagans, that he soon fell a victim to their fury, and suffered martyrdom under Valerianus and Gallienus, in 258.

#### 29.—SAINT MICHAEL.

Saint Michael was an archangel who presided over the Jewish nation, and had an army of angels under his command and conduct ; he fought also with the Dragon or Satan, and his angels ; and, contending with the Devil, he disputed about the body of Moses. See Rev. xii, 7 ; Jude 9. This festival has been kept with great solemnity ever since the sixth century.

There is an old custom still in use, of having a roast goose for dinner on Michaelmas-day ; and it is a popular saying, that, ‘ if you eat goose on Michaelmas-day, you will never want money all the year round.’—See lines on this subject by Poor Robin, in our last volume, p. 259.

About this time of the year, it has been, and still continues, the custom to elect the governors of towns and cities. For the ceremonies observed by the SHERIFFS OF LONDON, when they take their oaths at Westminster, see T. T. for 1814, p. 232, 233.

#### \*29. 1399.—HENRY IV BEGAN TO REIGN.

The great popularity which Henry enjoyed before he attained the crown, and which had so much aided him in the acquisition of it, was entirely lost, many years before the end of his reign ; and he governed the people more by terror than affection, more by his own policy than their sense of duty and allegiance.

But it must be owned that his prudence, vigilance, and foresight, in maintaining his power, were admirable; his command of temper remarkable; his courage, both military and political, without blemish: and he possessed many qualities which fitted him for his high station, and which rendered his usurpation of it, though pernicious in after-times, rather salutary, during his own reign, to the English nation. —*Hume.*

### 30.—SAINT JEROME.

Jerome was born in a town called Stridon, on the confines of Pannonia and Dalmatia. He translated the Old Testament into Latin: this version, now styled the *Vulgate*, is the only one used or allowed by the Romish church. He died in the 80th year of his age, A.D. 422.

## Astronomical Occurrences

In SEPTEMBER 1818.

THE Sun enters *Libra* at 19 m. after 4 in the afternoon of the 23d of this month; and he will rise and set, during the same period, as in the following

### TABLE

*Of the Sun's Rising and Setting on every Fifth Day.*

September 1st,	Sun rises	14 m. after 5.	Sets	46 m. after 6
6th,	- -	23 - - 5.	-	37 - - 6
11th,	- -	33 - - 5.	-	27 - - 6
16th,	- -	43 - - 5.	-	17 - - 6
21st,	- -	53 - - 5.	-	7 - - 6
26th,	- -	2 - - 6.	-	58 - - 5

### *Equation of Time.*

When it is required to find mean or true time from that given by a good sun-dial, subtract the quantities contained in the following table from those indicated by the dial. The quantity to be used for any intermediate epoch must be found as before directed.



in the evening of the 21st. Venus will also be in conjunction with Spica on the 1st, when she will be 83' north of the star. Jupiter will be in quadrature at 4 in the morning of the 28th, and Uranus at a quarter before 2 in the afternoon of the 9th. Saturn will likewise be in opposition at 45 m. after 3 in the morning of the 8th of this month.

*On COMETS in general, and those of 1807 and 1811 in particular.*

Of all the celestial bodies comets have, perhaps, given rise to the greatest number of speculations and conjectures, and their appearance has always been a source of curiosity to the learned, and of terror to the ignorant. Even as far back as the days of Homer, comets were considered as harbingers of Divine vengeance, as is evident from the following lines :—

The red Comet, by Saturnia sent,  
To fright the nations with a dire portent ;  
A fatal sign to armies on the plain,  
Or trembling sailors on the wat'ry main.

Milton, Young, and Savage, all speak of comets being regarded in this light ; and there is reason to lament that the idea should still be entertained by any of the inhabitants of the 19th century. Nor is there any class of bodies in the whole material universe, respecting which the reins of judgment and philosophic investigation have been so much abandoned to the power of imagination as in what relates to comets ; and the result has been, what it must always be in similar circumstances, a multiplicity of wild, and in many instances absurd, conjectures. With these, however, we shall not exhaust the patience of our readers, but state a few of the best established circumstances respecting this class of the heavenly bodies.

Notwithstanding all the observations that have been made, and all that has been written on the subject since the days of Pythagoras and Aristotle to the

present time, our knowledge of these wandering bodies is still imperfect. Tycho Brahe and Dominique Cassini were the first among modern astronomers who assigned them a place in the solar system; but even they appear to have been unacquainted both with their motion round the Sun and the nature of the curves they describe. These circumstances were left for the sagacity of Newton to discover, who not only determined the figure of their orbits, but ascertained the laws to which they are subject. He proved that they revolve about the Sun in very eccentric ellipses, having that luminary in one of their foci; and that their motions are regulated by the same laws as those of the other planets, since they describe equal areas in equal times. But as the transverse axes of these orbits are extremely long with respect to their conjugate diameters, and the comets only visible to us for a small period near one extremity of the curve, this part of its path does not sensibly differ from a parabola; for this would be the curve that they would actually describe if the ratio of the axes was indefinite. And as this modification renders the calculations much simpler, without introducing sensible error into the result, it is upon this principle that the elements of their orbits are usually computed by the most eminent astronomers. From this it not only follows that the areas described by the same comet are proportional to the times, but also that the areas described by different comets in equal times are proportional to the square roots of their perihelion distances. And likewise, if a planet be supposed to revolve about the Sun in a circular orbit, the radius of which is equal to the perihelion distance of a comet, the areas described by these two bodies in the same time will be to each other as 0 to  $\sqrt{2}$ , which connects the motions of comets with that of the planets.

By the assistance of these laws the area described by a comet in any given time from its passage through

its perihelion may be determined, and its position in its parabolic orbit fixed. For this purpose a parabola must be conceived to pass through several observed places of the comet; and then having ascertained that it is still found on this curve at other epochs of its visible route, the elements of its motion may be ascertained. These are its perihelion distance, the position of its perihelion, the instant of its passage through that point, the inclination of its orbit to the plane of the ecliptic, and the place of its nodes. When these five elements are known, the place of the comet may be assigned at any given epoch of its revolution, and that place compared with actual observation when it is visible. But the accurate determination of these elements requires difficult and delicate calculations; for which we must refer such as wish to be acquainted with them to the *Mécanique Céleste*, where he may find the most accurate and general method that has yet been given.

But as the difficulty of making accurate observations on these bodies exceeds both the means and the practice of most of those whose curiosity may be excited by their appearance, several easy methods of approximating to their elements have been adopted. For this purpose, the apparent diameter of the comet being taken as frequently as possible, a judgment may be formed of its relative distance at different times. Its degree of motion and its brightness also deserve attention; for when it moves with the greatest velocity, or appears brightest, it may fairly be presumed that it is near its perihelion. If the place of the comet can be observed when it has no latitude, the position of its node and the time of passing it would be accurately determined: but as this can seldom be done, these elements must be approximated to by other means. The proper course of a comet may be found by observing its distance, on several successive nights, from two fixed stars, the latitudes and longitudes of which are known;

or by finding its altitude when it is in the same azimuth with two known stars; as from these observations the place of the comet for each night is easily computed by spherical trigonometry; and thus the course of the comet becomes determined. Longomontanus also pointed out an easy method of tracing out the course of a comet mechanically, which is to find out two stars in the same line with the comet, by stretching a fine thread or a hair before the eye, so as to pass over the three bodies; and then to do the same for other two stars and the comet. Then, upon a celestial globe or a planisphere, draw a fine line connecting each of these pairs of stars, and the intersection of these lines will give the situation of the comet at that time. This repeated for several successive nights, and all the points joined, will indicate the path of the comet in the heavens; and consequently a great circle drawn through three distant places, will show, by its intersection with the ecliptic, nearly the place of the node, and the inclination of its orbit to the plane of the ecliptic; which being thus found by a good number of observations, independent of each other, the mean of all the results may be taken; and, if the observations have been made with care, this mean may be regarded as a tolerable approximation to the truth.

The great eccentricity of the orbits of these bodies causes a small error in the observations, to produce a great effect in the results of their calculated elements, and renders it difficult to ascertain them with accuracy; besides the thickness of the atmosphere with which a comet is generally surrounded, and the variations to which it is subject, also render it almost impossible to ascertain, with any degree of precision, when either the limb or the centre passes the wire of the telescope: much uncertainty must therefore accompany the result thus deduced. The only safe method, therefore, to determine the periods of comets, is to compare the elements of all those that have been

computed; and where any remarkable coincidence is perceived, an identity may be inferred; it being extremely improbable that two different comets should have the same inclination, the same perihelion distance, and the places of the perihelion and the node the same. By this means, the periodic time being determined, the major axis of the orbit becomes known from the laws of Kepler, and, the perihelion distance being likewise obtained from observation, will also give the minor axis of its orbit.

The perfect identity of the observed elements of a comet, with those of one that had previously appeared, is not absolutely necessary for concluding that they are the same; for the elements of the orbit may, like those of the planets, experience perturbations by which they are in some measure changed. And, consequently, if the elements of the one afford only a near approximation to those of the other, the doctrine of probabilities furnishes the means of judging what conclusion is to be drawn from these resemblances. It was in this way that Dr. Halley was enabled to foretel the appearance of the comet in 1759; which he thus ascertained to have appeared in 1456, 1531, 1607, and 1682, and which therefore occupies between 75 and 76 years in completing one revolution; and consequently ought to appear again in 1835. According to the third law of Kepler, therefore, if the semitransverse axis of the earth's orbit be taken for unity, the mean distance of that comet from the Sun will be equal to the cube root of the square of 76, or to 17.95. For if  $d$  denote the mean distance of the earth from the Sun, and  $D$  that of the comet,  $t$  and  $T$  the times of their sidereal revolutions, the laws of Kepler give,

$$\frac{D^3}{d^3} = \frac{T^2}{t^2}.$$

In the present case we have  $T = 76t$ ; if, there-



fore, the mean distance of the earth be supposed to be unity, or  $d = 1$ , we shall have

$$D = \sqrt[3]{76} = 17.95.$$

The transverse axis of the orbit will therefore be 35.9; and as its perihelion distance was observed to be 0.58, it follows that its aphelion distance was 35.32. The greatest distance of this comet from the Sun, therefore, exceeded thirty-five times that of the earth, while its least distance was only about half that of the earth; hence the orbit it describes is extremely eccentric.

The intervals between the returns of the same comet to its perihelion are not equal to each other. That from 1531 to 1607 was longer by three months than that from 1607 to 1682; and this last was eighteen months shorter than that from 1682 to 1759. It therefore appears that the movements of comets are subject to variations, like those of the planets, but in a greater degree.

The comet of 1770 presents a striking example of these inequalities. The observations on that comet, calculated first by *Lexell*, and afterwards by *Burkhardt*, assigned for the time of its revolution a period of five years and seven months; but it has not since reappeared; which has induced astronomers to conclude that the nature of its orbit must have been changed since its appearance in 1770. See *Biot's Astronomie Physique*, tome troisième.

The orbits of about one hundred comets have been calculated with sufficient accuracy for ascertaining their identity on any future appearance. Many of these orbits are inclined to the plane of the ecliptic in large angles, and many of them approach much nearer the Sun than the earth does. Their motions are also different from those of the planets, some of them being direct and others retrograde, nearly half the number moving each way. The different motions

of the comets, and the various inclinations of their orbits to the plane of the ecliptic, must not be regarded as the work of chance, but as calculated to answer beneficial purposes, or avoid baneful consequences; for if these orbits had been nearly coincident with that of the earth, both bodies might have arrived at the common point of intersection of their orbits at the same time; in which case a derangement of both motions must, at least, have been the necessary result. But, according to all the observations that have been made respecting their present distribution and direction, there is not the least reason to apprehend any such consequence.

The following table contains a list of the last twenty-one of the principal comets that have been observed, with the time of passing their perihelia, and their nearest approach to the Sun.

Years.	Passage of the Perihelion.	Nearest distance from the Sun in English Miles.	Direction of their Motion.
1790	- Jan. 15	- - - 71 millions.	- - Retrograde.
1790	- Jan. 28	- - - 101	- - Direct.
1790	- May 21	- - - 75	- - Retrograde.
1792	- Jan. 13	- - - 122	- - Retrograde.
1792	- Dec. 27	- - - 91	- - Retrograde.
1793	- Nov. 4	- - - 38	- - Retrograde.
1793	- Nov. 18	- - - 142	- - Direct.
1795	- Dec. 15	- - - 23	- - Direct.
1796	- April 2	- - - 149	- - Retrograde.
1797	- July 9	- - - 50	- - Retrograde.
1798	- April 4	- - - 46	- - Direct.
1798	- Dec. 31	- - - 73	- - Retrograde.
1799	- Sept. 7	- - - 79	- - Retrograde.
1799	- Dec. 25	- - - 25	- - Retrograde.
1801	- Aug. 8	- - - 22	- - Retrograde.
1802	- Sept. 9	- - - 103	- - Direct.
1804	- Feb. 13	- - - 101	- - Direct.
1805	- Nov. 18	- - - 35	- - Direct.
1805	- Dec. 31	- - - 84	- - Direct.
1806	- Dec. 28	- - - 102	- - Retrograde.
1807	- Sept. 18	- - - 61	- - Direct.

[To be continued.]

# The Naturalist's Diary

For SEPTEMBER 1818.

The cooling breezes sweep the evening lawn,  
Though still the vigorous Sun shoots fervent rays  
Upon the southern cottage, decked with vines.

SEPTEMBER is, generally, accounted the finest and most settled month in the year. The mornings and evenings are cool, but possess a delightful freshness, while the middle of the day is pleasantly warm and open.

Still swarm the russet meads with busy life;  
On every leaf, on every blade, they weave  
A shady covert; thick the spiders hang  
Their wily webs, and many a painted fly,  
Entangled in the snare tenacious, rue  
The murderous fang of the insidious foe.

BIDLAKE.

A 'morning's walk' at this season is replete with gratification to the admirer of Nature's beauties. What a magnificent phenomenon is every day exhibited in the rising of the Sun! yet how common is the observation, that indolence and the love of sleep prevent a great part of mankind from contemplating this beauteous wonder of the creation! What numbers are there, in high life especially, who prefer a few more hours of sleep to all the pleasures of a morning walk!

This circumstance has been ridiculed with great propriety by Addison, in the Spectator. 'The unaccountable disposition in mankind to continue awake in the night, and sleep in the sunshine, has made me inquire, whether the same change has happened to any other animals? For this reason, I desired a friend of mine in the country to let me know whether the lark rises as early as it did formerly, and whether the cock begins to crow at his usual hour? My friend has answered me, That his poultry are

as regular as ever, and that all the birds and the beasts of his neighbourhood keep the same hours that they have observed in the memory of man ; and the same which, in all probability, they have kept for these five thousand years.' The same excellent author continues, in a more serious strain, ' Who would not wonder at this perverted relish of those who are reckoned the most polite part of mankind, that prefer coal and candles to the Sun, and exchange so many cheerful morning hours for the pleasures of midnight revels and debauches ? If a man were only to consult his health, he would choose to live his whole time, if possible, in daylight, and to retire out of the world into silence and sleep, while the raw damps and unwholesome vapours fly abroad, without a sun to disperse, moderate, or control them. For my own part, I value an hour in the morning as much as common libertines do an hour at midnight. When I find myself awakened into being, and perceive my life renewed within me, and at the same time see the whole face of Nature recovered out of the dark uncomfortable state in which it lay for several hours, my heart overflows with such secret sentiments of joy and gratitude, as are a kind of implicit praise to the great Author of Nature. The mind, in these early seasons of the day, is so refreshed in all its faculties, and borne up with such new supplies of animal spirits, that she finds herself in a state of youth, especially when she is entertained with the breath of flowers, the melody of birds, the dews that hang upon the plants, and all those other sweets of Nature that are peculiar to the morning. But it is impossible for a man to have this relish of being, this exquisite taste of life, who does not come into the world before it is in all its noise and hurry ; who loses the rising of the Sun, the still hour of the day, and, immediately upon his first getting up, plunges himself into the ordinary cares or follies of the world.'

And such are the sentiments of the poet of the Seasons, whose soul was so capable of enjoying, and his genius of describing, the pleasures of the morning :—

Falsely luxurious, will not man awake,  
And, springing from the bed of sloth, enjoy  
The cool, the fragrant, and the silent hour,  
To meditation due and sacred song?  
For is there aught in sleep can charm the wise?  
To lie in dead oblivion, losing half  
The fleeting moments of too short a life;  
Total extinction of th' enlightened soul!  
Or else to feverish vanity alive,  
Wildered, and tossing through distempered dreams?  
Who would in such a gloomy state remain  
Longer than Nature craves? when every muse  
And every blooming pleasure wait without,  
To bless the wildly-devious morning walk?

But it is not indolence and the love of sleep only that give rise to these observations. Beauty ceases to charm, and magnificence to strike, when the object, however perfect it may be, is become familiar to a mind unaccustomed to reflect on the order and harmony of the creation, and on those wonderful relations between all the objects of it which naturally lead the devout man to the contemplation of a First Cause, the Life, and Soul, and Energy of All. Hence we observe a kind of culpable inattention and indifference, even in those who are most habituated to rural scenes, and who, consequently, must enjoy the most frequent opportunities of admiring and contemplating the works of Nature. Satisfied, for instance, that the Sun enlightens the world, and dispenses the most essential benefits to mankind, they have no solicitude to explore the cause of these wonderful effects. They view, every day, the most glorious object in Nature, without one emotion of grateful pleasure, without one idea or reflection. How different the feelings of the poet, as expressed in these charming lines :—

Sweet is the breath of Morn, her rising sweet,  
With charm of earliest birds; pleasant the Sun,  
When first on this delightful land he spreads  
His orient beams on herb, tree, fruit, and flower,  
Glist'ring with dew.

MILTON.

It is certain that we nowhere meet with a more glorious or more pleasing show of Nature, than what appears in the heavens at the rising of the Sun. The richest decorations, the most variegated and the most gorgeous scenery, that human fancy can imagine, must vanish into nothing, when compared with a spectacle in which radiance and beauty are so pre-eminent.

The Morning, in fine, displays to the world a new and magnificent creation. The shades of night had concealed the view and enjoyment of earth and skies. But now the light returns, and we behold all Nature renewed in youth and beauty. We are reminded of Milton's fine description of the creation, when God first commanded the earth to 'put forth the verdant grass :'

He scarce had said, when the bare earth, till then  
Desert and bare, unsightly, unadorned,  
Brought forth the tender grass, whose verdure clad  
Her universal face with pleasant green;  
Then herbs of every leaf, that sudden flowered,  
Opening their various colours, and made gay  
Her bosom smelling sweet.—  
—With high woods the hills were crowned,  
With tufts the vallies, and each fountain side  
With borders 'long the rivers; that earth now  
Seemed like to heaven, a seat where gods might dwell,  
Or wander with delight, and love to haunt  
Her sacred shades.

Nor is this poetic fiction: the morning landscape is indeed exquisitely beautiful. We behold the mountains crowned, as if by the instantaneous effect of enchantment, with majestic woods; the spreading lawns covered with herds and flocks; the fields ripening into harvest; and the meadows enamelled with flowers, and watered by meandering streams.

The whole horizon looks gay ; the scattered clouds assume a vivid variety of hues ; the lighter vapours are converted into gold ; and every plant and every flower sparkles with orient pearl. In proportion as the day approaches, the spectacle is still more beautiful. By soft progressions of light, Nature at length appears in her utmost perfection. The Sun is rising. A first ray, escaped from the mountain's top, that still conceals the radiant orb from the sight, darts rapidly from one end of the horizon to the other. Successive rays strengthen the first. The face of the Sun is disengaged by degrees, till it looks, at last, in boundless majesty abroad ! All Nature rejoices in a delightful renovation of life and vigour. The feathered tribes salute the bright source of day with their melodious notes. Every living creature is in action, and is sensible to new returns of pleasure and new capacities of enjoyment.

Mallet has amplified this pleasing subject with the most beautiful and picturesque imagery :—

And now pale glimmering on the verge of heaven,  
From east to north in doubtful twilight seen,  
A whitening lustre shoots its tender beam ;  
While shade and silence yet involve the ball.  
Now sacred Morn, ascending, smiles serene  
A dewy radiance, brightening o'er the world.  
Gay daughter of the Air, for ever young,  
For ever pleasing ! Lo, she onward comes,  
In fluid gold and azure loose arrayed,  
Sun-tinctured, changeful hues. At her approach,  
The western gray of yonder breaking clouds  
Slow reddens into flame : the rising mists,  
From off the mountain's brow, roll blue away  
In curling spires, and open all his woods,  
High-waving in the sky ; th' uncoloured stream,  
Beneath her glowing ray, translucent shines.  
Glad Nature feels her thro' her boundless realms  
Of life and sense ; and calls forth all her sweets,  
Fragrance and song. From each unfolding flower  
Transpires the balm of life, that Zephyr wafts,  
Delicious, on his rosy wing : each bird,  
Or high in air, or secret in the shade,  
Rejoicing, warbles wild his matin-hymn.

While beasts of chase, by secret instinct moved,  
Scud o'er the lawns, and, plunging into night,  
In brake, or cavern, slumber out the day.

Invited by the cheerful Morn abroad,  
See, from his humble roof, the good man comes  
To taste her freshness, and improve her rise  
In holy musing. Rapture in his eye,  
And kneeling wonder, speak his silent soul,  
With gratitude o'erflowing, and with praise !

Now Industry is up. The village pours  
Her useful sons abroad to various toil :  
The labourer here, with every instrument  
Of future plenty armed ; and there the swain,  
A rural king amid his subject-flocks,  
Whose bleatings wake the vocal hills afar.  
The traveller, too, pursues his early road,  
Among the dews of Morn. Aurora calls ;  
And all the living landscape moves around.

But see, the flushed horizon flames intense  
With vivid red, in rich profusion streamed  
O'er heaven's pure arch. At once the clouds assume  
Their gayest liveries ; these with silvery beams  
Fringed lovely ; splendid those in liquid gold ;  
And speak their sovereign's state. He comes, behold !  
Fountain of light and colour, warmth and life !  
The king of glory ! Round his head divine  
Diffusive showers of radiance circling flow,  
As o'er the Indian wave up-rising fair  
He looks abroad on Nature, and invests,  
Where'er his universal eye surveys,  
Her ample bosom, earth, air, sea, and sky,  
In one bright robe, with heavenly tinctures gay.

Rural scenery is now much enlivened by the variety of colours, some lively and beautiful, which are assumed, towards the end of the month, by the fading leaves of trees and shrubs. These appearances are very striking even in our own fine forests, but cannot be compared with the magnificent scenes presented to the eye of the enraptured traveller in the primeval woods which shade the equinoctial regions of Africa and America.—(See our last volume, p. 269.)

Mr. Stillingfleet remarks, that, about the 25th, the leaves of the plane tree become tawny ; of the hazel, yellow ; of the oak, yellowish green ; of the sycamore,



dirty brown ; of the maple according to the soil and season, every hue, from pale yellow to a deep red and orange ; of the ash, a fine lemon colour ; of the elm, orange ; of the hawthorn, tawny yellow ; of the cherry, red ; of the hornbeam, bright yellow ; of the willow, still hoary. Yet, many of these tints cannot be considered complete, in most seasons, till the middle or latter end of October.

The silent and gradual progress of maturation is now completed ; and human industry beholds, with triumph, the rich productions of its toil. The vegetable tribes disclose their infinitely various form of *fruit* ; which term, while, with respect to common use, it is confined to a few peculiar modes of fructification, in the more comprehensive language of the naturalist, includes every product of vegetation, by which the rudiments of a future progeny are developed and separated from the parent plant.

Partridges (*tetrao perdix*) are in great plenty at this season of the year : they are chiefly found in temperate climates, but nowhere in such abundance as in England. Partridges pair early in the spring : about the month of May, the female lays from fourteen to eighteen or twenty eggs, making her nest of dry leaves or grass upon the ground. The young birds learn to run as soon as hatched, frequently encumbered with part of the shell sticking to them ; and picking up slugs, grain, ants, &c.—See the ‘ Partridges, an Elegy,’ in our last volume, p. 282.

There are in blow, in this month, nasturtia, china aster, marigolds, sweet peas, mignonette, golden rod, stocks, tangier pea, holy-oak, michaelmas daisy, saffron (*crocus sativus*), and ivy (*hedera helix*). Among the maritime plants may be named, the marsh glasswort (*salicornia herbacea*), and the sea-stork's bill (*erodium maritimum*), on sandy shores ; and the officinal marsh-mallow (*althæa officinalis*) in salt marshes.

Herrings (*clupea*) pay their annual visit to England

in this month, and afford a rich harvest to the inhabitants of its eastern and western coasts. Exclusive of the various methods of preparing this fish for sale, in different countries, an immense quantity of oil is drawn from it, forming a great and important commercial article among the northern nations.

Various of the feathered tribe now commence their autumnal music; among these, the *thrush*, the *blackbird*, and the *woodlark*, are now conspicuous. The *phalena russula*, and the saffron butterfly (*papilio hyale*), appear in this month. Flies (*musca*) abound in our windows.—See T. T. for 1816, p. 240; and our last volume, p. 274. Various are the means used to get rid of these troublesome guests, who not only pester us with their numbers, but contaminate our furniture: the most successful antidote is arsenic dissolved in water, with the addition of a little sugar; this they readily sip, and it quickly proves fatal. The composition has been, and is still, held as a secret by some; but, where there are children or servants, it will perhaps be better to bear the annoyance of the flies, than run the risk of poisoning some part of the family. For some pretty lines addressed to a fly, see T. T. for 1817, p. 277.—The snake *sloughs* or casts its skin in this month.

The chimney or common swallow (*hirundo rustica*) disappears about the end of September. The congregating flocks of swallows and martins on house tops, but principally upon the towers of churches on our coast, are very beautiful and amusing in this and the succeeding month. The eastern coast from Harwich to Winterton-ness, in Norfolk, is principally resorted to by these birds. At *Dunwich*, in Suffolk, in particular, great quantities of swallows are observed to land in the spring, and to take their departure for other climes the latter end of September, or beginning of October. 'I was at Dunwich,' says

the author of a Tour through Great Britain, 'about the beginning of October, and, lodging in a house that looked into the churchyard, I observed in the evening an unusual multitude of swallows, sitting on the leads of the church, and covering the tops of several houses round about. This led me to inquire what was the meaning of such a prodigious number of swallows sitting there. I was answered that this was the season when the swallows, their food failing here, begin to leave us, and return to the country, wherever it be, from whence they came; and that this being the nearest land to the opposite coast, and the wind contrary, they were waiting for a gale, and might be said to be wind-bound. This was more evident to me when I found, that, in the morning, the wind had come about to the north-west in the night, and there was not one swallow to be seen.'

*To the SWALLOW.*

Twittering tenant of the sky,  
Whither, whither wilt thou fly?  
Summer blithely frolics round;  
Florid beauties grace the ground:  
Rosy odours, youthful gales,  
Still breathe from bowers and verdant vales.

Whither, fluttering, wilt thou fly,  
Swiftest courser of the sky?  
Still in brook, or fountain spring,  
Dip thy never-weary wing;  
Sweep along the level mead,  
Where peaceful herds securely feed.

Happy wanderer, ever free,  
All my fancies follow thee;  
Mount with thee the blue serene,  
Visit every foreign scene:  
And, while seasons vary here,  
With thee, share summer all the year.

• Whither, whither wilt thou fly,  
Swiftest courser of the sky?  
Stay, O stay, till autumn's hand  
Purple o'er my native land;  
Mildness, beauty, joy, and love,  
And fellow-warblers charm the grove.

Of the migration and torpidity of the *swallow*, we have already treated at length; in T. T. for 1814, 1815, and 1816; to these volumes, therefore, we refer the ingenious naturalist, and to *Mr. Forster's Observations on the Brumal Retreat of the Swallow*, third edition, for further information on this curious subject. See also the '*Swallows*,' an Elegy, in our last volume, p. 128.

M. Sonnini, during his travels in Upper and Lower Egypt, had frequent opportunities of observing the arrival of various birds of passage from Europe; among which were many common in the woods of France and Italy in the spring. After speaking of the arrival of the *bec-figue*, or fig-pecker, he says, 'I remarked more particularly, at Rosetta and at Alexandria, some other species of birds of passage during the month of September, the period when the absence of these new guests of a country more mild, transforms our naked forests into gloomy solitudes. The bird which fills our groves with his shrill whistling, as it embellishes them with his brilliant plumage, the loriot, perches himself, from preference, on the mulberry-trees of the gardens in the environs of inhabited places; but he does not utter his sonorous voice: he is silent in Egypt; he has not there to sing his loves. He serves for food, and his passage is little more than fifteen days.

'But there is no passage of birds more considerable, and at the same time more unaccountable, than that of the *quails*. They arrive and re-assemble on the sandy shores of Egypt in very numerous companies. It is difficult to conceive how a bird, whose flight is heavy, and which cannot long continue on the wing, which we see alight in our fields almost as soon as in motion, should venture to traverse so vast an extent of sea. The islands which are scattered over the Mediterranean, the vessels which sail along its surface, serve them indeed for resting-places, and for

shelter when the winds become stormy or contrary to their direction. But even these asylums, which the quail has not always strength enough to reach, and the distance of which frequently occasions its loss, prove also places of destruction to it. Too much fatigued to escape, they permit themselves to be taken easily upon inhospitable shores; they are caught without difficulty by the hand on the rigging of ships; and when excess of weariness prevents them from rising high enough to perch upon it, they dash violently against the hull, fall back, stunned by the shock, and disappear in the waves. Whatever may be the dangers of a long voyage, which these birds seem unqualified to perform, whatever diminution of number the troops of these feeble travellers may undergo in the passage, there arrives, notwithstanding, so great a multitude in the neighbourhood of Alexandria, that the quantity to be seen there is really past belief. The fowlers of Egypt catch them in nets. During the first days after their passage, such numbers are on sale in the markets of Alexandria, that three, and sometimes four, may be bought for a medina, or for fifteen or sixteen deniers (not three farthings). The crews of merchant ships were fed upon them; and there existed at the consul's office at Alexandria several complaints preferred by mariners against their captains, for giving them nothing but quails to eat<sup>1</sup>.

Many of the small billed birds that feed on insects disappear when the cold weather commences. The *throstle*, the *red-wing*, and the *fieldfare*, which migrated in March, now return; and the *ring-ousel* arrives from the Welsh and Scottish Alps to winter in more sheltered situations. All these birds feed upon berries, of which there is a plentiful supply, in our woods, during a great part of their

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<sup>1</sup> Sonnini's Travels in Egypt, by Dr. Hunter, vol. iii, p. 319.

stay. The thristle and the red-wing are delicate eating.

Hazel-nuts are now ripe, and the filberd-tree is laden with its agreeable fruit. See some beautiful lines on the filberd-tree in T. T. for 1815, p. 271.

The oak begins to shed its acorns, and the beech nuts fall; both of which are termed mast. A luxurious pasturage is afforded for such *hogs* as are kept on the borders of forests, for about six weeks, from the end of September.—See our volume for 1816, p. 272.

The autumnal equinox happens on the 22d of September, and, at this time, the days and nights are equal all over the earth. About this period, heavy storms of wind and rain are experienced, as well as at the vernal equinox.

The heavy *dews* at morning and evening in this month lead us to reflect upon this common but most beautiful phenomenon of nature. The most recent and plausible *theory* of dew has been noticed in our last volume, p. 280; we shall now add some illustrations from the poets. In *one instance* only does Homer, who abounds in personifications and descriptions of the morning, mention the dew, when describing the bed of Jupiter:—

Celestial *dews* descending o'er the ground,  
Perfume the mount, and breathe ambrosia round.

POPE.

Three other passages occur in Pope's translation of the Iliad and Odyssey, in which Aurora sprinkles the *dewy* dawn with light. But this is the embellishment of the translator; for in neither of these passages is the epithet *dewy* in the original.

But Milton gives them more importance; he introduces them into his descriptions with a peculiar felicity:—

Now Morn her rosy steps in th' eastern clime  
Advancing, *sowed the earth with orient pearl.*

And the same divine bard, in speaking of the prodigious host of Satan, has introduced dew into a most beautiful simile :—

An host,  
Imnumerable as the stars of night  
Or stars of Morning, dew-drops which the sun  
Intepals on every leaf and every flower.

A favourite comparison with our English poets is that of tears to dew, or of dew to tears. Thus Shakspeare :—

And that same dew, which sometime on the buds  
Was wont to swell like round and orient pearls,  
Stood now within the pretty flow'ret's eyes,  
Like tears that did their own disgrace bewail.

In Samson Agonistes, when Dalilah comes to visit her eyeless husband, she is afraid to approach ; and Milton has made her silence most beautifully expressive : the Chorus tells Samson,

Yet on she moves, now stands, and eyes thee fixed,  
About t' have spoke, but now, with head declined,  
Like a fair flower surcharged with dew, she weeps,  
And words addressed seem into tears dissolved,  
Wetting the borders of her silken veil.

In Virgil, the *Ros in tenera pecori gratissimus herba* — ‘ the dew on the tender grass grateful to the cattle,’ is rendered by Dryden *the pearly drops of morning dews*, and, by Dr. Warton, *the Morning's earliest tears*.

It were easy to multiply these instances from the poets, but our limits forbid. The Holy Scriptures abound with admirable allusions to dew, familiar to every reader, and too numerous to be quoted. In a word, observes an elegant moral writer, these ‘ transparent beauties of the morn’ not only furnish us with poetic images and philosophic knowledge, but with very powerful motives also for a life of piety, benevolence, and virtue. Their great utility to the vegetable kingdom, in particular, should lead us to

the unceasing adoration of that gracious Being, who created nothing, which has existence, merely for an object of idle speculation. When we consider, moreover, how silently and insensibly 'the light-footed dews' fulfil the gracious purposes of our common Benefactor; incessantly dispensing nutriment to vegetable life, and refreshment to animated being; how persuasively should this instruct the rich and opulent to let their secret bounty, unostentatious as the dew of heaven, descend continually to revive the drooping hearts of modest and unassuming worth! For what are the high and mighty of the earth without that bliss-diffusing spirit of humanity, whose exertions, while they tend every day to dignify its noble possessor, prepare and mature him for immortality? What, I repeat it, are illustrious titles and unbounded affluence, without this divine spirit, but the momentary radiance of the same morning dews, which glitter awhile, and then vanish for ever?—(*Contemplative Philosopher*, No. xxiii.)

When the harvest is gathered in by the farmer, and the gleaners have got all they can pick 'ear by ear,' then the herd, the sheep, pigs, and turkeys, take the 'stubble,' or, as it is sometimes called, the 'stray.'

The husbandman now prepares for seedtime; and the fields are again ploughed up for the winter corn, rye, and wheat, which are sown in September and October. The entrances to bee-hives are straitened, to prevent the access of wasps and other pilferers.

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## OCTOBER.

THIS month was called *Domitianus* in the time of Domitian; but after his death, by the decree of the Senate, it took the name of October, every one hating the name and memory of so detestable a tyrant. It was called *wyn-monat*, or wine month, by the Saxons.

### Remarkable Days

IN OCTOBER 1818.

#### 1.—SAINT REMIGIUS.

REMIGIUS was born at Landen, where he so closely pursued his studies, that he was supposed to lead a monastic life. After the death of Bennadius, he was, on account of his exemplary piety and extraordinary learning, chosen bishop of Rheims. He converted to Christianity not only King Clodoveus, but also a considerable part of his subjects; hence he is honoured by some devotees with the title of the French Apostle. After he had held his bishopric 74 years, he died at 96 years of age, A.D. 535. The cruise which he used was preserved in France, their kings being formerly anointed from it at their coronation.

#### \*1. 1811.—BISHOP PERCY DIRD.

He was promoted to the bishopric of Dromore in Ireland, in the year 1782, where he constantly resided, attending to the comfort and instruction of the poor with unremitting care, and superintending the sacred and civil interests of the diocese with vigilance and assiduity; revered and beloved for his piety, liberality, benevolence, and hospitality, by persons of every rank and religious denomination. Under the loss of sight, of which he was gradually deprived some years before his death, he steadily maintained his habitual cheerfulness; and, in his last painful illness, he displayed such fortitude and strength of mind, such patience and resignation to the Divine will, and expressed such heartfelt thankfulness for

the goodness and mercy shown to him in the course of a long and happy life, as were truly impressive, and worthy of that pure christian spirit, in him so eminently conspicuous. His 'Reliques' will endear his name to every lover of old English poetry, and is a work which constitutes an æra in the history of our literature. His 'Key to the New Testament' is an excellent manual for students, and has been adopted in the Universities. He translated the Song of Solomon, and published some versions from the Chinese, the 'Hermit of Warkworth,' a Translation of Mullet's Northern Antiquities, &c. &c.

#### 6.—SAINT FAITH.

This virgin martyr suffered death under Dacianus, about the year 290, the most cruel torments being inflicted upon her. Vows of celibacy were highly esteemed in the early ages; and, even in our own times, many rites still exist in honour of the virgin state. Upon the decease of a virgin, flowers are yet strewed before the corpse by young girls dressed in *white*, as emblematic of innocence. Garlands also are, in some places, woven and attached to the beams of churches in which virgins have been buried.

#### \*7. 1795.—DR. J. O. ZIMMERMAN DIED.

The author of the popular work on 'Solitude,' known only in England in its abridged form, but making four quarto volumes in the original German. After twenty years' correspondence with the eminent Dr. Tissot, of Lausanne, without ever seeing him, he at length paid him a visit, which Dr. T., afterwards his biographer, thus records:—'I had at length the pleasure of *seeing* him, I shall not say of *knowing* him. I found that I knew him already; the friend *conversing*, reminded me every moment of the friend *writing*, and perfectly resembled the portrait which I had drawn of him. I saw the man of genius, who with promptitude seizes an object under all its relations, and whose imagination knows how to present it under the most agreeable form. His conversation

was instructive, brilliant, sprinkled with a number of interesting facts and pleasant narrations, and animated by an expressive countenance. He spoke of every thing with great precision. On every occasion I saw the man of sincerity, rectitude, and virtue.'

\*7. 1795.—EDYSTONE LIGHTHOUSE COMPLETED.

9.—SAINT DENYS.

Saint Denys, or Dionysius, the Areopagite, was converted to Christianity by St. Paul. See *Acts* xvii. He was, at first, one of the Judges of the celebrated court of the Areopagus, but was afterwards made Bishop of Athens, where he suffered martyrdom for the sake of the gospel. There are several books which bear his name; but they are, no doubt, forgeries of the sixth century. The French say, that he was the first that preached the gospel among them, and for that reason consider him their tutelar saint; but for this supposition there is no ground, as Christianity was never preached in France until long after his decease.

The abbey erected to the honour of this martyred saint, at the little village of St. Denis, near Paris, was founded (says Mr. Eustace) by Dagobert, a prince of the Merovingian race; and was thus almost coeval with the monarchy. Its abbots distinguished themselves by their talents and their integrity, during many an eventful year; and so interwoven was its history with that of the country, that the annals of St. Denis became the records of France. It was honoured in a particular manner by the royal family, and was, from its foundation, the mausoleum of the sovereigns of France. It was at an early period burned by the Normans in one of their predatory inroads, but restored with increased magnificence, and some time after rebuilt in its present form by Suger, the celebrated abbot, who governed France as regent, in the absence of St. Louis. Its decorations, as may easily be supposed, were worthy its antiquity and high destination; and fretted vaults, and storied windows, and

rich shrines, and marble altars, combined their influence to heighten its majesty, and to awe and delight the spectator. It was served by a numerous fraternity of learned and holy monks : fumes of incense ascended daily from its altars ; and morning, noon, and night, the tones of the organ, and the notes of the choir, echoed from its vaults. Such was St. Denis in its glory ; and such I beheld it in the year 1790.

‘ In 1802, I revisited it. The ruins of the abbey strewed the ground. The church stood stript and profaned ; the wind roared through the unglazed windows, and murmured round the vaults ; the rain dropt from the roof, and deluged the pavement ; the royal dead had been torn from the repositories of departed greatness ; the bones of heroes had been made the playthings of children, and the dust of monarchs had been scattered to the wind. The clock alone remained in the tower, tolling every quarter, as if to measure the time permitted to *the abomination of desolation*, and to record each repeated act of sacrilege and impiety.

‘ The inhabitants of the town made representations to Buonaparte on the subject, and were flattered with hopes and promises. Still, however, reparations were neglected, and the progress of ruin was rapid. At length the Emperor undertook what the First Consul had neglected ; St. Denis was destined to receive the ashes of the imperial dynasty ; and orders were issued to render it worthy in every respect of the honours that awaited it. The royal vaults were cleared, repaired, and in many respects considerably improved. The subterraneous chapels were re-established, and three of them fitted up with exquisite taste, and devoted to the memory of the preceding dynasties. In these chapels, prayers were daily offered up for the repose of the Merovingian, Carlovingian, and Capetian princes. The reparation has been continued by Louis XVIII, and, excepting the stained windows, the loss

of which is irreparable, the church of St. Denis will probably resume, ere long, its antient majesty.'

13.—TRANSLATION OF KING EDWARD THE  
CONFESSOR.

He was the youngest son of King Ethelred ; but as all his elder brothers were either dead, or had fled away, he succeeded to the crown of England in the year 1042. He collected all the most useful laws made by the Saxon and Danish kings. The additional title of Confessor was probably given him by the pope, for settling what was then called *Rome-Scot*, but now is better known by the name of *Peter's Pence*. For some pretty lines on this subject, see T. T. for 1815, p. 281.

The monks ascribed a number of miracles to Edward : even his vestments were reputed holy. His crown, chair, staff, spurs, &c. are still used at the coronation of our English kings.

\*14. 1066.—BATTLE OF HASTINGS.

\*16. 1793.—JOHN HUNTER DIED,

One of the most profound anatomists, sagacious and expert surgeons, and acute observers of nature, that any age has produced. His invaluable collection of 'Comparative Anatomy,' which Mr. Hunter left behind, was purchased for the College of Surgeons, and is now deposited in their museum in Lincoln's Inn Fields.

17.—SAINT ETHELDREDA.

She was a princess of distinguished piety, daughter of Anna, King of the East-Angles, and Hæreswitha his queen, and was born about the year 630, at Ixning, a small village in Suffolk. In the year 673, she founded the conventual church of Ely, with the adjoining convent. Of this monastery she was constituted abbess, the monks and nuns living in society and regular order : it flourished for nearly two hundred years, but was destroyed, with its inhabitants, by the Danes, in 870.—See T. T. for 1814, p. 255.

18.—SAINT LUKE THE EVANGELIST.

Luke was born at Antioch, the metropolis of Syria, a place celebrated for the study of the liberal arts. The notion that he was a painter is without foundation, as it is not countenanced by antient writers. Dr. Lardner thinks that he might have been by profession a physician, as the expression 'beloved physician,' Col. iv, 14, seems to intimate. Luke lived a single life, and died in the 84th year of his age, about the year of Christ 70; probably a natural death.

\*19. 1216.—HENRY III BEGAN TO REIGN.

25.—ACCESSION OF KING GEORGE III.

Upon the death of George II, his present Majesty came to the throne, on the 22d of September 1760.

25.—SAINT CRISPIN.

Crispinus and Crispianus, two brothers, were born at Rome; whence they travelled to Soissons in France, about the year 308, to propagate the Christian religion. Being desirous, however, of rendering themselves independent, they gained a subsistence by shoemaking. It having been discovered that they privately embraced the Christian faith, and endeavoured to make proselytes of the inhabitants, the governor of the town immediately ordered them to be beheaded, about the year 308. From this time, the shoemakers chose them for their tutelar saints. There is a curious anecdote relative to this day in T.F. for 1816; p. 291.

\*25. 1154.—HENRY II BEGAN TO REIGN.

Henry II was the greatest prince of his time for wisdom, virtue, and ability, and the most powerful, in extent of dominion, of all those that had ever filled the throne of England. His character, both in public and private life, is almost without a blemish; and he seems to have possessed every accomplishment, both of body and mind, which makes a man estimable or amiable. He was of a middle stature, strong, and well-proportioned; his countenance was lively

and engaging, his conversation affable and entertaining; his elocution easy, persuasive, and ever at command. He loved peace, but possessed both conduct and bravery in war; was provident without timidity; severe in the execution of justice without rigour; and temperate without austerity. He preserved health, and kept himself from corpulency, to which he was somewhat inclined, by an abstemious diet, and by frequent exercise, particularly by hunting. When he could enjoy leisure, he recreated himself in learned conversation, or in reading; and he cultivated his natural talents by study, above any prince of his time. His affections, as well as his enmities, were warm and durable; and his long experience of the ingratitude and infidelity of men never destroyed the natural sensibility of his temper, which disposed him to friendship and society.—*Hume*.

26.—PROCLAMATION OF KING GEORGE III.

His present Majesty was proclaimed King on the 26th of October, 1760, the day after his accession to the throne.

\*26. 1751.—DR. DODDRIDGE DIED,

One of the most learned and candid of the Dissenters, who was solicited to take preferment in the church, and whose writings are recommended by its most strenuous advocates. His life, by Orton, is a valuable piece of biography. The excellent lines written by Dr. D. on the motto of his family coat of arms, ‘*Dum vivimus vivamus*,’ in Dr. Johnson’s opinion, constitute one of the finest epigrams in the English language, and, although generally known, cannot be too widely circulated.

‘Live, while you live,’ the Epicure would say,  
 ‘And seize the pleasures of the present day.’  
 ‘Live, while you live,’ the sacred preacher cries,  
 ‘And give, to God, each moment as it flies.’  
 Lord, in my view, let both united be;  
 I live in pleasure while I live to thee.

\*27. 1783.—M. D’ALEMBERT DIED.

After he left college, he found himself alone and

unconnected in the world, and sought an asylum in the house of his nurse. This good woman perceived his ardent activity, heard him mentioned as the writer of many books, but never took it into her head that he was a great man, and rather beheld him with compassion. 'You will never,' said she to him one day, 'be any thing but a philosopher; and what is a philosopher?—a fool, who toils and plagues himself during his life, that people may talk of him when he is no more.' D'Alembert is principally known by his mathematical publications, and his contributions to the 'Encyclopedie.'

28.—SAINT SIMON AND SAINT JUDE, *Apostles*.

Simon is called the *Canaanite*, from the Hebrew word *Cana*, to be zealous: hence his name of *Simon Zelotes*, or the Zealot, *Luke vi*, 15. After enduring various troubles and afflictions, he, with great cheerfulness, suffered death on the cross.

Jude is called both by the name of Thaddæus and Libbæus: *Matt. x*, 3, and *Mark iii*, 18. Jude, the brother of James: *Jude*, verse 1. And Judas, not Iscariot: *John xiv*, 22. He was of our Lord's kindred; 'Is not his mother called Mary, and his brethren James and Joses, and Simon and Judas?' *Matt. xiii*, 55. After great success in his apostolic ministry, he was, at last, for a free and open reproof of the superstitious rites of the Magi, cruelly put to death. He has left one epistle of universal concern to Christians.

\*28. 1704.—JOHN LOCKE DIED.

This great and most excellent philosopher was rendered illustrious, not only by his wisdom, but by his piety and virtue, by his love of truth and diligence in the pursuit of it, and by his generous ardour in defence of the civil and religious rights of mankind. His writings have immortalized his name; and particularly his 'Essay concerning the Human Understanding.'



## \*28. 900.—ALFRED DIED.

The merit of this prince, both in private and public life, may, with advantage, be set in opposition to that of any monarch or citizen, which the annals of any age or any nation can present to us. He seems, indeed, to be the complete model of that perfect character, which, under the denomination of a sage or wise man, the philosophers have been fond of delineating, rather as a fiction of their imagination, than in hopes of ever seeing it reduced to practice; so happily were all his virtues tempered together; so justly were they blended; and so powerfully did each prevent the other from exceeding its proper bounds.

He knew how to conciliate the most enterprising spirit with the coolest moderation; the most obstinate perseverance, with the easiest flexibility; the most severe justice, with the greatest lenity; the greatest rigour in command, with the greatest affability of deportment; the highest capacity and inclination for science, with the most shining talents for action.

Nature also, as if desirous that so bright a production of her skill should be set in the fairest light, had bestowed on him all bodily accomplishments! vigour of limbs, dignity of shape and air, and a pleasant, engaging, and open countenance. By living in that barbarous age, he was deprived of historians worthy to transmit his fame to posterity; and we wish to see him delineated in more lively colours, and with more particular strokes, that we might at least perceive some of those small specks and blemishes, from which, as a man, it was impossible he should be entirely exempted.—*Hume*.

## \*31. 1817.—THIRD CENTENARY OF THE REFORMATION.

It was on the 31st of October, 1517, that Martin Luther, that celebrated Saxon Reformer, issued his

famed 95 Propositions against the shameful sale of indulgences, and thus laid the foundation for a reform of many abuses which had prevailed for ages in the church of Christ. This third jubilee was celebrated all over the Continent on this day, and in the Lutheran churches in London. In the front of the pulpit, the name of LUTHER was inscribed in large letters; below, that of MELANCTHON; and on both sides, Frederick the Wise, and Gustavus Adolphus, the latter of whom sacrificed his life in the right and liberty of the Protestant church. The churches were decorated with evergreens, &c. &c.

## Astronomical Occurrences

IN OCTOBER 1818.

THE Sun enters Scorpio at 28 m. after midnight on the 23d of this month; and he will rise and set at the following times during the same period.

TABLE

*Of the Sun's Rising and Setting for every fifth Day.*

October 1st,	Sun rises 12 m. after 6.	Sets 48 m. after 5
6th,	- - 22 - - 6.	- 38 - - 5
11th,	- - 32 - - 6.	- 28 - - 5
16th,	- - 42 - - 6.	- 18 - - 5
21st,	- - 51 - - 6.	- 9 - - 5
26th,	- - 1 - - 7.	- 59 - - 4
31st,	- - 10 - - 7.	- 50 - - 4

The Sun will also be eclipsed on the 29th of this month, but the eclipse will not be visible here; as it will be central at 5 h. 49 $\frac{1}{2}$  m. in longitude, in 87° 25 $\frac{1}{2}$  west, and latitude 51° 2 $\frac{1}{2}$  south.

### *Equation of Time.*

Subtract the following quantities from the time as indicated by a good sun-dial, and the remainders will be the mean time answering to the same epochs.

TABLE.

		m.	a.
Thursday,	1st, from the time by the dial subtract	10	12
Tuesday,	6th, - - - - -	11	44
Sunday,	11th, - - - - -	13	6
Friday,	16th, - - - - -	14	17
Wednesday,	21st, - - - - -	15	13
Monday,	26th, - - - - -	15	52
Saturday,	31st, - - - - -	16	18

*Phases of the Moon.*

First Quarter, -	7th day, at 5 m. after 2 morning.
Full Moon, -	14th, - 29 - - 5 - - -
Last Quarter, -	22d, - 30 - - 7 - - -
New Moon, -	29th, - 28 - - 5 evening.

*Eclipse of the Moon.*

The Moon will be visibly eclipsed on the 14th of this month; the circumstances of which will be as follow :—

	a.	m.
Beginning of the eclipse -	4	53½ morning.
Ecliptic opposition - - -	5	28½ - - -
Middle of the eclipse - - -	5	39 - - -
End of the eclipse - - -	6	24½ - - -

Digits eclipsed  $1^{\circ} 51'$  on the Moon's northern limb, or from the south side of the Earth's shadow.

*Moon's Passage over the Meridian.*

The Moon will pass the first meridian at the following times during this month, viz.

October 7th, at 52 m. after 6 in the evening.
8th, - 51 - - 7 - - - - -
9th, - 45 - - 8 - - - - -
10th, - 36 - - 9 - - - - -
11th, - 23 - - 10 - - - - -
12th, - 8 - - 11 - - - - -
20th, - 37 - - 4 in the morning.
21st, - 28 - - 5 - - - - -
22d, - 19 - - 6 - - - - -

*Eclipses of Jupiter's Satellites.*

The following are the visible eclipses of Jupiter's first and second satellites during the present month, viz.

## EMERSIONS.

1st Satellite, 2d day, 30 m. after 6 evening.

- - - 25th, - 46 - - 6 - - -

2d Satellite, 5th, - 16 - - 6 - - -

*Other Phenomena.*

The Moon and Venus will be in conjunction at 4 m. after 7 in the evening of the 3d of this month. Mercury will attain his greatest elongation on the 10th, and Venus on the 14th. Venus will also be in conjunction with  $\alpha$  in Scorpio on the 13th; and the Moon with Pollux at 18 m. after four in the afternoon of the 21st. She will also be in conjunction with Mercury at four in the morning of the 29th; and with  $\alpha$  in Scorpio at 12 m. after 9 at night of the 31st.

*On COMETS in general, and those of 1807 and 1811 in particular.*

[Continued from page 233.]

The two comets which appeared in 1807 and 1811 were the most conspicuous of any that have lately visited our system; and not only created a very lively interest in astronomers, but excited a great curiosity in the mind of the public. Numerous observations were made upon the first of these by both English and foreign astronomers, for determining the elements of its orbit, as well as for ascertaining its physical constitution. This comet first appeared about the end of September; and Mr. Gavin Lowe made fourteen observations upon it from the 4th of October to the 12th of November. From the data obtained by those observations he calculated its elements, according to the rules given by Sir Henry Englefield, in his Treatise on Comets. These elements are, taking the mean distance of the Earth from the Sun for unity,—

Perihelion distance - - - - - 0.64802

Longitude of the perihelion - - 28° 41' in Scorpio.

Longitude of the ascending node - 26° 36' in Sagittarius.

Time of passing the perihelion	- - Sep. 18 <sup>d</sup> 22 <sup>h</sup> 10 <sup>m</sup>
Time of passing the ascending node	Sep. 29 18 48
Heliocentric long. of line of apsides	- - - 13° 11' Gemini.
Northern latitude of ditto	- - - 24 43
Inclination of the orbit to the plane of the ecliptic	- - - - - } 63 15

In these elements, it is astronomical time that is used, and therefore the time of passing the perihelion, if reduced to common time, would be at 10 m. after 10 in the morning of the 19th of September, and that of passing the ascending node would be 48 m. past 6 in the morning of the 30th.

Dr. Herschel's observations upon this comet were principally directed towards ascertaining its physical constitution. They were begun on the 4th of October, 1807, and continued till the 21st of February, 1808. On the 19th of October, it appeared to be less than the third satellite of Jupiter, its apparent diameter being only about 1". According to his calculations, the following elements answered to that day, viz.

Perihelion distance	- - - - - 0.647491
Distance from the Earth	- - - - - 1.169192
Its distance from the ascending node of its orbit	- - - - - } 73° 45' 44"
And its diameter in English miles	- - - 538.

The observations which Dr. Herschel made on the light of this celestial visitant were from the 4th to the 19th of October, during which period the comet uniformly preserved the appearance of a planetary disc fully enlightened by the Sun; it was every where equally bright, round, and well defined. Now, as that part of the disc which was then visible to us could not possibly have a full illumination from the Sun, but ought to have had a defalcation of light, the doctor inferred that it did not shine by the reflected rays of the Sun alone. He also concludes that the nucleus had a real disc, and he thinks it was composed of dark and solid matter, like the planetary bodies. The doctor's last observation was

made on the 21st of February, 1808, when the comet was still a very conspicuous object, though almost *three* times the mean distance of the Sun from the Earth, and nearly 2·7 from the Sun. The circumstance of its being so conspicuous at such a distance affords great support to the opinion of its self illumination; which property, if correct, constitutes a further distinction between cometary and planetary bodies than had previously been pointed out. The perihelion distance found by Dr. Herschel also agrees very nearly with that obtained by Mr. Lowe, as above stated.

This comet was first discovered in the constellation of the Serpent, and travelled nearly at the rate of a degree a day through those of Hercules and the Lyre, till it ceased to be visible. M. Olbers, of Bremen, embraced all favourable opportunities of observing it till the 19th of February, 1808, when, his observations being interrupted by illness, M. Bessel continued his observations in the observatory of Lilienthal, near Bremen, till the 24th of the same month; and the following elements were calculated by him, from these observations and others taken at Bremen. The time here mentioned is mean time at Paris.

Time of passing the perihelion, Sep.	-	18d.	7h.	59m.	48s
Longitude of perihelion	- - - - -	9s.	0°	56'	
Perihelion distance	- - - - -	0·64648			
Longitude of the ascending node	- - - - -	8s.	26°	46'	34"
Inclination of its orbit	- - - - -	68	10	53	
Period of its revolution 1900 years.					

The time of this revolution is by no means to be relied upon as that which will actually take place; for even admitting the calculation to have been made with all possible care and correctness, the perturbations this comet may experience in the course of so long a period may greatly alter its return. For besides the influence it may experience from the large gravitating bodies of our system, may it not be af-

fectured by the bodies of other systems, into which the distant part of its orbit may enter in the course of so long a revolution? In that part, the velocity in its orbit will also be the least, and therefore the perturbations would be most easily effected.

The comet which appeared so brilliant and beautiful in the autumn of 1811, moved in an orbit very favourably situated for astronomical observations; and Dr. Herschel availed himself of this circumstance to examine all parts of it with scrutinizing attention, by telescopes of every degree of requisite light, distinctness, and power. His observations were chiefly made with a view to ascertain the most interesting particulars of its physical construction. These observations were communicated to the Royal Society, and inserted in their volume for 1812; and from which the following account of the constitution of this celestial stranger is principally derived.

In an early part of his observations, this eminent observer remarked something like a distinct luminous body near the centre of its head, or what some astronomers would call the nucleus. He observed this luminous part to change its relative situation in the head, sometimes appearing nearer to and at others more remote from the edge nearest the Sun; its brightness was also subject to considerable variation. Dr. H. was soon led to infer that the comet enveloped a real planetary body; and from a series of observations which he made on the 19th of October, at the time when the comet was 114 millions of miles from the Earth, with magnifying powers from 169 to 600, he ascertained that the diameter of the planetary body was about 428 miles, and that it was surrounded with a cometic atmosphere. Numerous observations induced him to conclude that this body was globular. Its colour was a pale ruddy tint, like that of such equally small stars as are inclined to red. The phasis of its illumination, at the time he made the observation, was to a full disc as 1.6 to 2. From

this (he observes), as well as from the high magnifying power, which a point so faint could not have borne with advantage, had it shone with reflected light, we may infer that it was visible by rays emitted from its own body.' On the 19th of October, the apparent magnitude of this disc was only  $0^{\text{m}}.775$ .

The colour of the head which enveloped this body was very remarkable. Its light appeared to be greenish or bluish green. Its apparent magnitude, when viewed with a 20 feet telescope, on the 6th of October, was  $3' 45''$ . And from calculation it appeared that the real diameter of the head at that time was 127 thousand miles. This head was surrounded by a transparent cometic atmosphere, of about  $15'$  apparent diameter, and more than 507 thousand miles in real diameter.

The head was also partly surrounded by a train of yellowish light, which was kept at a considerable distance by an interval of comparative darkness. This light was apparently circular on one side of the head, and concentric with it; but, after extending about half round, it divided into two streams, one passing off by each side of the head. The apparent diameter of this envelope, considering the semicircle as completed, was about  $19'$ , and its real diameter more than 643 thousand miles.

The greatest observed length of the tail was on the 15th of October; the atmosphere was very clear, and the length was  $23\frac{1}{2}$  degrees, which gave a computed length of 100 millions of miles: its greatest breadth was about 15 millions. The appearance of the tail was exactly like that of the milky way, where it is destitute of stars.

Having given a detailed account of the observations from which he obtained the preceding conclusions, Dr. Herschel enters on inquiries relative to the real construction of the various parts of the comet. From these he concludes that the figure of both the planetary body and the head, as well as that of its trans-



parent atmosphere, was globular. The figure of the luminous envelope the doctor states to have been that of an inverted hollow cone, terminating at its vertex in a hollow cup of nearly a hemispherical construction. The whole of this envelope he considers to have been very thin. A rotary motion of the comet, he thinks, would account for the variations observed in the length of the opposite branches which enclosed the tail.

In comparing the comet of 1807 with the present one, Dr. H. observes, 'The first of these, in its approach to the Sun, came within 61 millions of miles of it; and its tail, when longest, covered an extent of 9 millions. The present one in its perihelion did not come so near the Sun by 36 millions of miles, and nevertheless acquired a tail 91 millions of miles longer than the former. The difference of their distances from the Earth when these measures were taken was only about 2 millions of miles.' From this circumstance he conjectures that the comet of 1807 was in a state of greater consolidation, either from having previously approached the Sun or some of the fixed stars, which there is reason to believe are of the same nature as the Sun. He then concludes the paper with some conjectures relative to the comparative ages of the two comets, and some remarks on the increase and original formation of comets; for which we must refer the curious reader to the paper itself, merely observing that we regard them as *conjectures* only.

Besides these two celebrated and beautiful visitants which have recently traversed those parts of the solar system, another small telescope comet was discovered by M. Olbers in the early part of March 1815. This comet was so small and distant as to be seen only by astronomers; and respecting which *Delambre*, in his report of the labours of the Class of Mathematical and Physical Sciences of the Royal Institute of France during the year 1815, makes the following remarks:—

The astronomers of Paris, disappointed by the weather, could make but a small number of observations; from which, however, M. Nicollet deduced a parabolic orbit. Foreign astronomers, sooner aware of the appearance of the comet, and less distracted by circumstances, were able to follow it for a greater length of time, and with more assiduity. From these more numerous observations, they have deduced an elliptic orbit; and it is remarkable, that the greater axis of this orbit is less than that of the orbit of Uranus, and even less than that of the comet of 1759, whose periodic revolution is between 75 and 76 years. We may therefore expect the return of this last in about 73 years. This expectation at least is justified by the results of several eminent astronomers, who have separately arrived at this conclusion, with a correspondence very uncommon in a problem which can never be solved with certainty after a single appearance. This agreement is evident from the following elements of the two elliptical orbits.

*Elements according to MM. Lindenau and Nicolai.  
The Time is that at Sceberrg.*

Time of Perihelion, April 1815	- - -	26 <sup>d</sup> ·03857
Longitude of Perihelion	- - - - -	149° 3' 28"·13
Longitude of the Node	- - - - -	83 28 52·3
Inclination - - - - -	- - - - -	44 29 56
Eccentricity - - - - -	- - - - -	0·93029345
Distance of Perihelion	- - - - -	1·2126878
Semixaxis - - - - -	- - - - -	17·39704
Time of Revolution - - - - -	- - - - -	72·584 years
Motion direct.		

*Elements according to M. Bessel. Time at Paris.*

Time of Perihelion, April 1815	- - -	26 <sup>d</sup> ·00374
Longitude of Perihelion	- - - - -	149° 3' 29"·1
Longitude of the Node	- - - - -	83 28 46·14
Inclination of the Orbit	- - - - -	44 29 53·7
Eccentricity of ditto	- - - - -	0·93112771
Semixaxis - - - - -	- - - - -	17·60964
Time of Revolution - - - - -	- - - - -	73·89682

Various hypotheses have been advanced to account

for the nature of comets, especially for their tails, which assume such a variety of appearances. But as these are more speculative than either useful or certain, we shall not enter into many particulars respecting them. *Newton* thought the tails consisted of some kind of vapour arising constantly from the head or nucleus of the comet. The ascent of these vapours into the tail he supposed to be occasioned by the rarefaction of its atmosphere on its approach to the Sun. *Euler* conceived that a great affinity existed between the tails of comets, the zodiacal light, and the aurora borealis; and that the common cause of all these was the actions of light on the atmospheres of comets, the Sun, and the earth. Dr. *Hamilton*, in the second of his *Philosophical Essays*, shows that the tails of comets, the aurora borealis, and the electric fluid, agree remarkably, both in appearance and in such properties as can be observed relative to each of them; from which he concludes that they are substances of the same nature.

Another ingenious hypothesis advanced to account for the nature of these heavenly bodies is contained in a letter from M. *De Luc* to M. *Bode*, the Astronomer Royal, at Berlin. This philosopher lays it down as a principle relative to such bodies as are capable of becoming *luminous*, 'that the light which escapes from them had entered into their *composition* as an ingredient, and is evolved by chemical *decomposition*.' This author regards the vapour which constitutes the tails of comets to be of a phosphoric nature, and the action of the solar rays he considers as the chemical cause which regulates either the production or the decomposition of these vapours, or both, and gives rise to these luminous effects. Though an approach to the Sun may produce a more rapid decomposition of these vapours, M. *De Luc* asserts that it cannot always produce the same effect, either on different comets, or on the same comet at different times, unless the production of these vapours proceed with the same intensity, but which we do not know to be the

case. He thinks, that if these vapours rise to a considerable height above a comet before they are decomposed, when the comet approaches its perihelion, and they become luminous, it may appear like a nebulosity only, without our being able to perceive any nucleus; and that when we can perceive a determinate disc, it is probably owing to the regularity in the extent of the lucid vapours, without the body of the comet being really visible.

The tails of comets have always been observed to be on that side of them which is farthest from the Sun, and to have their convexities turned towards the side to which they are moving; and the former of these circumstances is accounted for by this writer, by supposing these tails to consist of a fluid similar to the electric fluid, proceeding from the comet, and rendered luminous by decomposition in its course. The cause of the curvature he supposes to arise from the particles of the fluid of which they are composed partaking of the same projectile motion as the comet at the moment they are emitted from it; and having attained a considerable distance from the body of the comet, and continuing to move with the same velocity, but in a larger orbit, their angular motion will be diminished, and the curvature be a natural consequence. The length of the tail, according to this hypothesis, will be greater as the production of the fluid is more abundant and its decomposition more slowly effected; and this writer thinks that these circumstances may be subject to such variations, even in the same comet, as to preclude its identity from being ascertained. This, however, can only apply to the difference in the *appearance* of the same comet on its return; for if the elements of its orbit be the same, or nearly the same, in both cases, as we have already observed, its identity ought to be inferred, though the appearance may be somewhat different.

[To be continued.]

# The Naturalist's Diary

For OCTOBER 1818.

Farewel ye wild hills, scattered o'er with spring !  
 Sweet solitude, where Flora smiled unseen !  
 Farewel each breeze of balmy-burdened wing !  
 The violet's blue bank, and the tall wood green !

\* \* \* \* \*

Farewel the walk along the woodland vale !  
 Flower-feeding rills in murmurs drawn away !  
 Farewel the sweet breath of the early gale,  
 And the dear glories of the closing day !  
 The nameless charms of high, poetic thought,  
 That spring's green hours to fancy's children bore;  
 The words divine, imagination wrote  
 On slumber's light leaf, by the murmuring shore.

All, all adieu ! from autumn's sober power  
 Fly the dear dreams of spring's delightful reign ;  
 Gay summer strips her rosy-mantled bower,  
 And rude winds waste the glories of her train.

Yet AUTUMN yields her joys of humbler kind ;  
 Sad o'er her golden ruins as we stray,  
 Sweet melancholy soothes the musing mind,  
 And nature's charms, delightful in decay.

All-bounteous Power, whom happy worlds adore,  
 With every scene some grateful change she brings—  
 In WINTER's wild shows, AUTUMN's golden store ;  
 In glowing SUMMERS, and in blooming SPRINGS !

LANGHORNE.

THE groves now lose their leafy honours ; but, before they are entirely tarnished, an adventitious beauty, arising from that gradual decay which loosens the withering leaf, gilds the autumnal landscape with a temporary splendour, superior to the verdure of spring, or the luxuriance of summer. The infinitely various and ever-changing hues of the leaves at this season, melting into every soft gradation of tint and shades, will long continue to engage the imitation of the painter, and the contemplation of the poet and the philosopher. The scenes, presented to our

view by the *forest* in this and the succeeding month, are beautifully pourtrayed by Mr. Gisborne :—

Nature, in all her works harmonious, blends  
 Extremes with soft gradation, and with tints  
 Kindred throughout her changeful robe adorns.  
 Bounds yon unbroken *wood* the level plain ?  
 Light groups detached and solitary trees  
 Unite them. Weave yon *bushes* o'er the hill  
 Uninterrupted thickets ? Furzy *brakes*  
 Aspire to meet them. Spreads the furzy *brake* ?  
 With varying breadth th' intruding *greensward* winds,  
 And the rude mass with velvet maze divides.  
 And lo, e'en now, when with autumnal gold  
 She decks the lofty branch, on every twig  
 Of humbler growth the many-coloured fruit  
 Mindful she hangs. With scarlet crown the *briar*  
 Glitters : the *thorn* its ruddy clusters bend :  
 Scarce can the *sloe* sustain its purple load,  
 Nor yet from taste austere, puckering the lip  
 And disappointed tongue, by frost reclaimed ;  
 While from the prickly shoots pale *bryony*,  
 Twined round the oft encircled stem, suspends  
 Its lucid berries. Rich in glossy balls  
*Privet's* dark spikes its myrtle leaves among  
 With trembling lustre gleam : and *woodbine* shoots,  
 New beauties offering still to seasons new,  
 With crimson spheres their fragrant bloom replace.

Nature having perfected her seeds, her next care is to disperse them : the seed cannot answer its purpose while it remains confined in the capsule. After the seeds, therefore, are ripened, the pericarpium opens to let them out ; and the opening is not like an accidental bursting, but, for the most part, is according to a certain rule in each plant. Some seeds which are furnished with hooks or spines, attach themselves to the rough coats of animals, and thus promote their dispersion. Others are contained in berries, and, being swallowed by birds, are again committed, without injury, to the earth in various places.—See T. T. for 1814, p. 269, and our volume for 1815, p. 296.

Hips, haws, sloes, and blackberries, now adorn

our hedges ; and the berries of the barberry (*berberis vulgaris*), bryony (*tamus communis*), honeysuckle, elder, holly, woody-nightsshade, and privet (*ligustrum vulgare*), afford a valuable supply of food for many of the feathered race, while passing their winter with us.

About the middle of the month, the common martin disappears ; and, shortly afterwards, the smallest kind of swallow, the sand-martin, migrates. The Royston or hooded crow (*corvus cornix*) arrives from Scotland and the northern parts of England, being driven thence by the severity of the season. It destroys lambs, and young partridges and moor fowl, and is almost as mischievous as the raven. The woodcock returns, and is found on our eastern coasts. The predictive signs of his appearance are thus noticed by the author of '*Fowling*,' a Poem :—

On the leafless tree  
The *fieldfare* sits, and his shrill note repeats  
Monotonous. Loud o'er the shrivelled heath  
Whistles the *plover*, and along the meads  
With busy bill the dusky *starlings* spread.

The haunts and habits of this bird are also thus prettily described by the same poet :—

When first he comes  
From his long journey o'er th' unfriendly main,  
With weary wing the *woodcock* throws him down,  
Impatient for repose, on the bare cliffs;  
Thence with short flight the nearest cover seeks,  
Low copse or straggling furze ; till the deep woods  
Invite him to take up his fixt abode.  
Oft on the sheltered side of some high hill,  
If cruel frost bind not th' ungrateful soil,  
Content he wanders, or beneath the shade  
Of scattered hollies turns, with curious bill,  
The fall'n leaves, to find his hidden food.  
When the thick shelter of the spreading woods  
His wand'ring eye with friendly aspect tempts,  
At morn and eve he seeks the limpid streams,  
And, springing thence, his stated flight he takes  
By the dim light, through op'ning glades there oft

The treach'rous net his rapid course cuts short,  
 And his fast flutt'ring pinions beat in vain.  
 But if with steep ascent he top the snare,  
 Or side-long 'scape it, through the withered ferns  
 He picks his silent way, or dozing lies  
 In th' o'ershadowing bush, till with keen nose  
 The ranging spaniel winds his close retreat,  
 And drives him forth to meet the fowler's aim.

FOWLING, a Poem.

Various kinds of *waterfowl* make their appearance ; and, about the middle of the month, *wild geese* leave the fens, and go to the rye lands, to devour the young corn. *Rooks* sport and dive, in a playful manner, before they go to roost, congregating in large numbers. *Stares* assemble in the fen countries, in vast multitudes, and, perching on the reeds, render them unfit for thatching, and thus materially injure the property of the farmer.

The ground is covered, about this time, with spiders' webs, crossing the path from shrub to shrub, and floating in the air. This *gossamer* appearance is noticed at length in our last volume, p. 298.

Among the *flowers* which are still usually in blow, in this month, is the holy-oak, Michaelmas daisy, stocks, nasturtian, marigold, mignonette, lavender, wall-flower, red hips, china rose, virginia stock, heart's ease, laurustinus, rocket, St. John's wort, periwinkle, &c. The hedges are now ornamented with the wreaths and festoons of the scarlet berries of the black briony; and now and then, that last 'pale promise of the waning year,' the *wild rose*, meets the eye.—The retiring of the tulip to its hibernacle, or winter-lodge, is thus noticed by an elegant modern poet :—

When o'er the cultured lawns and dreary wastes  
 Retiring Autumn flings her howling blasts,  
 Bends in tumultuous waves the struggling woods,  
 And showers their leafy honours on the floods,  
 In withering heaps collects the flowery spoil,  
 And each chill insect sinks beneath the soil :



Quick flies fair *Tulipa* the loud alarms,  
 And folds her infant closer in her arms;  
 In some lone cave, secure pavilion, lies,  
 And waits the courtship of serenest skies.—  
 So, six cold moons, the *dormouse* charmed to rest,  
 Indulgent sleep! beneath thy elder breast,  
 In fields of fancy climbs the kernelled groves,  
 Or shares the golden harvest with his loves.

As flowers now decay, and the bees cannot procure any farther support, this is the season for taking the honey. To obtain this precious article, the industrious collectors are destroyed with the fumes of burning brimstone. Various methods have been proposed to save the lives of the bees; but they are found so materially to reduce the profits of the owners, that it will be long before they are generally adopted. Consult, however, Mr. Huish's *Treatise on Bees*, p. 98, where is a description of his newly-invented hive, by which he is enabled to deprive the bees of their honey without losing a single bee.—There is a pretty 'Elegy to the Bee,' by Dr. Wolcott, in our last volume, p. 303.

The weather in October is peculiarly favourable to the sports of the field, and hunting and coursing are now at their height, as little damage is committed on the farmer's grounds after the gathering of the harvest. *Hares* possess not, like rabbits, the art of digging retreats in the earth. But they neither want instinct sufficient for their own preservation, nor sagacity for escaping their enemies.

'Tis instinct that directs the jealous *hare*  
 To choose her soft abode. With steps reversed  
 She forms the doubling maze; then, ere the morn  
 Peeps through the clouds, leaps to her close recess.

As wandering shepherds on the Arabian plains  
 No settled residence observe, but shift  
 Their moving camp; now, on some cooler hill  
 With cedars crowned, court the refreshing breeze;  
 And then, below, where trickling streams distil  
 From some precarious source, their thirst allay,  
 And feed their fainting flocks: So the wise hares  
 Oft quit their seats, lest some more curious eye

Should mark their haunts, and by dark treacherous wiles  
 Plot their destruction; or perchance in hopes  
 Of plenteous forage, near the ranker mead,  
 Or matted blade, wary and close they sit.  
 When spring shines forth, season of love and joy,  
 In the moist marsh, 'mong beds of rushes hid,  
 They cool their boiling blood. When summer suns  
 Bake the cleft earth, to thick wide-waving fields  
 Of corn full-grown they lead their helpless young:  
 But when autumnal torrents and fierce rains  
 Deluge the vale, in the dry crumbling bank  
 Their forms they delve, and cautiously avoid  
 The dripping covert. Yet when winter's cold  
 Their limbs benumbs, thither with speed returned  
 In the long grass they skulk, or shrinking creep  
 Among the withered leaves, thus changing still,  
 As fancy prompts them, or as food invites.

SOMERVILLE.

The taking of wild-fowl commences, by Act of Parliament, on the 1st of October, and the decoy-business is at the greatest height about the end of the month. Great numbers of wild ducks and other waterfowl are annually caught in the extensive marsh lands of Lincolnshire in this way.—See T. T. for 1814, p. 275.

The principal harvest of *apples* is about the beginning of this month; and the counties of *Herefordshire*, *Worcestershire*, *Somersetshire*, and *Devonshire*, are busily employed in the making of *cider* and *perry*. *Herefordshire* is particularly famous as a cider country. The apple and pear trees, which form the orchards of *Herefordshire*, are composed of a variety of the *pyrus malus*, or crab; and the *pyrus communis*, or common wild pear. The native wild crab is subject to considerable diversity in the appearance of its leaves, and in the colour, shape, and flavour of its fruit: by selecting and cultivating the best of these, all our valuable varieties have been produced. Several of these artificial varieties have been brought from *Normandy*, and other parts of the continent. See further in our last volume, p. 304. October is the great month for brewing beer, whence the name

applied to very strong beer of OLD OCTOBER. In this month also is the great *potatoe* harvest.—See pp. 180, 181.

The sowing of wheat is generally completed in this month : when the weather is too wet for this occupation, the farmer ploughs up the stubble fields for winter fallows. Acorns are sown at this season, and the *planting* of *forest* and *fruit* trees takes place. Some poetical directions for planting we select from the 'Year,' a Poem.

The cloud-aspiring *pine*,  
Though born to brave th'adversity of storms,  
Thrives best, removed when in its infant growth.  
But should necessity demand the task  
Of late transplanting, aid the feeble tree  
With sturdy stakes. Less fatal then, the gale  
Disturbs the tender roots. A fence provide,  
That from insidious foes may guard your care.  
To tender plants too oft the cattle's bite  
Injurious proves. Soft bark the nibbling hare  
Invites. So many ills on youth await !  
On the rough hill the lofty *beech* endures  
The ruder blast, but 'neath its shade denies  
The vegetable race a sheltering growth.  
Aloft the *poplar* waves beside the stream,  
And turns its silvery leaves to meet the light ;  
There too the *willow* tribes, that ever weep,  
Hang drooping o'er the glassy-bosomed wave ;  
And there the *aspen* shivers to the breeze.  
The *ash* asks not a depth of fruitful mould,  
But, like frugality, on little means  
It thrives, and high o'er creviced ruins spreads  
Its ample shade, or on the naked rock,  
That nods in air, with graceful limbs depends.

BIDLAKE.



## NOVEMBER.

THE Saxons called November *wint-monat*, or wind-month, on account of the prevalence of high winds in this month.

Vacation's gone—and pleas and strife  
 Begin to blossom into life;  
 And Westminster is overflown  
 With wit peculiarly its own;  
 Chief justices with brethren three  
 Swagger in ermined majesty;  
 Yet these, like other things, declare  
 What short-lived fools we mortals are;  
 For *Hilary Term* begins to wane  
 To *Easter's* transitory reign,  
 And *Trinity's* hot sunbeams now  
 Descend on *Michaelmas's* snow:  
 Succeeding Terms their loss atone;  
 But we, when once our days are flown,  
 With *Littleton* and *Blackstone* lie  
 Like records in the Treasury.  
 And who can tell, if we shall stay  
 To earn the fees we touched to-day?  
 For with the wealth we leave behind  
 The uninheritable mind  
 Is what our heirs shall never find.

ANON.

## Remarkable Days

In NOVEMBER 1818.

### 1.—ALL SAINTS.

In the early ages of Christianity the word *saint* was applied to all *believers*, as is evident in the use of it by Saint Paul and Saint Luke; but the term was afterwards restricted to such as excelled in Christian virtues. In the Romish church, holy persons canonized by the Pope are called *saints*, and are invoked and supplicated by the professors of that religion. The church of England instituted this festival in memory of all good men defunct, proposing them as patterns for Christian imitation, but not allowing any

prayers to be addressed to them.—For some rural customs on this day, see T. T. for 1814, pp. 278-9.

\*1. 1755.—EARTHQUAKE AT LISBON.

Towers, temples, palaces,  
 Flung from their deep foundations, roof on roof  
 Crushed horrible, and pile on pile o'erturned,  
 Fall total. \* \* \* \* \*  
 How greatly terrible, how dark and deep  
 The purposes of Heaven! At once o'erthrown,  
 White age and youth, the guilty and the just,  
 (Oh, seemingly severe!) promiscuous fall.  
 Reason, whose daring eye in vain explores  
 The fearful providence, confused, subdued  
 To silence and amazement, with due praise  
 Acknowledges th' Almighty, and adores  
 His will unerring, wisest, justest, best!

MALLET.

Some interesting particulars of this truly awful catastrophe may be seen in Mr. Buck's *Practical Expositor*, p. 365.

\*1. 1815.—DR. LETTSOM DIED.

The life of this celebrated philanthropist exhibited benevolence, as a marked and prominent feature, accompanied as usual, perhaps, with some few of those slight shades and imperfections inseparable from human frailty. Yet, in consequence of his demise, charity has lost one of her most zealous and successful advocates; our literary and medical societies, a generous benefactor; and the sick poor, a physician, whose gratuitous labours and kind attentions served to smooth the pillow of care, as well as of disease. Dr. Lettsom was born in a small island dependent on Tortola, and was, in principle, a Quaker. Like Barclay, he addicted himself to literature; and, like Penn, he was the advocate both of civil and religious liberty. With a noble scorn of all little, narrow, and contemptible notions, his beneficence extended alike to Churchmen and Sectarians; to freemen and slaves; every one, according to his liberal notions, appertained to the *friends*, who displayed kindness and

humanity towards his fellow-creatures. — See Annual Biography for 1817, p. 303; and Mr. Pettigrew's Life and Correspondence of Dr. Lettsom, in 3 vols. 8vo.

## 2.—ALL SOULS.

In Catholic countries, on the eve and day of All Souls, the churches are hung with black; the tombs are opened; a coffin covered with black, and surrounded with wax lights, is placed in the nave of the church, and, in one corner, figures in wood, representing the souls of the deceased, are halfway plunged into the flames,

### \*2. 1810.—PRINCESS AMELIA DIED.

The following beautiful lines were written, by this amiable princess, during her last illness:—

Untinking, idle, wild, and young,  
I laughed, and danced, and talked, and sung;  
And proud of health, of freedom vain,  
Dreamed not of sorrow, care, or pain;  
Concluding, in those hours of glee,  
That all the world was made for me.

But when the hour of trial came,  
When sickness shook this trembling frame,  
When folly's gay pursuits were o'er,  
And I could dance and sing no more,  
It then occurred how sad 'twould be  
Were this world only made for me.

## 5.—KING WILLIAM LANDED.

The glorious revolution of 1688 is commemorated on this day, when the throne of England became vested in the illustrious House of Orange. Although King William landed on the 5th of November, the almanacks still continue the mistake of marking it as the *fourth*.

## 5.—POWDER PLOT.

This day is kept to commemorate the diabolical attempt of the Papists to blow up the Parliament House. The best account of this nefarious transaction is detailed in Hume's History of England, vol.

vi, pp. 33-38 (8vo edition, 1802.)—See also T. T. for 1814, p. 280.

#### 6.—SAINT LEONARD.

Leonard, or *Lienard*, was a French nobleman of great reputation in the court of Clovis I; he was instructed in divinity by Remigius, Bishop of Rheims, and afterwards made Bishop of Limosin. Several miraculous stories are told of him by the monks, not worth relating. He died about the year 559, and has always been implored by prisoners as their guardian saint.

#### \*8. 1794.—WARSAW TAKEN BY THE RUSSIANS.

The action which preceded the surrender of this place was extremely bloody: of 26,000 men, only 2,000, it is said, escaped the savage fury of the Russians, 14,000 being killed, and 10,000 taken prisoners. The sanguinary Suvoroff, the Russian general, afterwards put to death no less than 20,000 men, women, and children, in one of the suburbs of the city.

#### 9.—LORD MAYOR'S DAY.

The word *mayor*, if we adopt the etymology of Verstegan, comes from the antient English *maier*, able or potent, of the verb *may* or *can*. King Richard I, A.D. 1189, first changed the bailiffs of London into Mayors; by whose example others were afterwards appointed.

'Twas at the venison feast, the borough won  
 By ———'s patriot son,  
 At top in pleasing state  
 The portly *Mayor* sate  
 As on judicial throne:  
 His *Aldermen* were placed around,  
 Their robes of scarlet with furred honours bound,  
 (A rich dessert the banquet crowned.)  
 The lively *Sheriffs* by his side  
 Each with each other vied  
 In suits of newest fashion's pride;  
 Genteel, gallant, and courtly pair,  
 Well ye deserve the charming *fare*.

The *Chaplain* sleek arose,  
 At bottom in his place,  
 With hasty accents to say grace:  
 Instant the keen-edged guests sit close,  
 And social joys embrace.  
 The course began with fish,  
 As fresh as one could wish,  
 Brought down by the mail, a lordly dish!  
 A turbot's spreading form bespoke the treat,  
 With luscious lobster sauce complete;  
 Soles, whittings, dorys—Quin's great boast,  
 Who first them sought on Torbay's coast,  
 Tasted—nor from his palate hurled,  
 But stamped their worth—himself the glutton of the world.  
 The guttling crowd admire the ample size;  
 A present rarity! one shouting cries;  
 A present rarity! another loud replies.  
 With ravished ears  
 The *Town-clerk* hears;  
 Affects the smile,  
 And carves the while,  
 And seems all great with Peers.  
 The praise of Sudbury's champagne park now chimed in pat;  
 The bucks so favoured, and the does so fat.  
 A sovereign haunch in triumph comes  
 Greeted with soft-applauding hums.  
 Now bring the jelly-sauce—It comes! it comes!  
 Venison ever fat and young  
 Foremost does 'mong dainties range;  
 Venison's dainties are a treasure,  
 Venison fills up Lord Mayor's leisure\*.

The following *jeu d'esprit* on the names of some of  
 the late Mayors of London appeared in a public print,  
 and may, perhaps, be thought worthy of a place in our  
 annual volume.

In choice of May'rs 'twill be confest  
 The citizens are prone to jest:  
 Of late a gentle *Flow'r* they tried,  
 November came and checked his pride.  
 A *Hunter* next, on palfrey grey,  
 Proudly pranced his year away:

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\* From a Parody on Alexander's Feast, by the Rev. Dr. Ford,  
 printed in the 'Times' for 9th November 1816. For further  
 particulars of Lord Mayor's Day, its ceremonies, &c. &c., we  
 refer to our last volume, p. 311.



They then, good order's foes to scare,  
Placed *Birch* upon the civic chair.  
Alas! this year 'tis understood  
They mean to make a May'r of *Wood*.

\*9. 1623.—WILLIAM CAMDEN DIED,

The learned writer of the '*Britannia*,' or description of Britain, the translation of which, with the additions by Gough, in 3 vols. folio, is an invaluable treasure to the British topographer.

11.—SAINT MARTIN.

He was a native of Hungary, and for some time followed the life of a soldier; but afterwards took orders, and was made Bishop of Tours, in France, in which see he continued for twenty-six years. Martin died about the year 397, much lamented, and highly esteemed for his virtues.—For a pleasing little ballad on this day, see T. T. for 1814, p. 286; and our last volume, p. 315.

13.—SAINT BRITIUS.

Britius, or Brice, succeeded St. Martin in the bishopric of Tours in the year 399. He died in 444.

\*13. 1690.—GEORGE FOX DIED,

The founder of the Society of *Friends*, or people called *Quakers*. Though an illiterate man, he was not deficient in good natural abilities, and was particularly conversant in the language of the scriptures. Of his piety, sincerity, and purity of intention, he afforded throughout his laborious life abundant evidence. His imagination, however, was too fervid and visionary; and, at the opening of his career, led him into extravagancies which were not only highly indecorous, but a species of that intolerance under which he was himself so grievous a sufferer. He afterward restrained his outrageous zeal, and proved a peaceful teacher of what he conceived to be dictated by the inward light of Christ within him; and was deservedly the object of commiseration for the shameful sufferings and persecutions by which he was harassed, and of praise for the fortitude and patience

with which he endured them. It was at Derby that the denomination of Quakers was first applied to Fox, and his followers, as a term of scorn; either on account of the great agitation and trembling with which the delivery of his addresses is said to have been usually attended, or because that, when brought before the magistrates, he exhorted them, and the others present, *to tremble at the name of the Lord.*

#### 17.—SAINT HUGH.

Our saint was a native of Burgundy, or Gratianopolis. At first he was only a regular canon, but afterwards a Carthusian monk, and at length, through the favour of King Henry II, was constituted Bishop of Lincoln. In this see he obtained great fame, not only for his extraordinary austerity of life, and excellent economy, but for his rebuilding the cathedral from the foundation. Hugh died on this day, in the year 1200, of an ague. In 1220, he was canonized at Rome, and his remains were taken up October 7, 1282, and deposited in a silver shrine.

#### 20.—EDMUND, KING AND MARTYR.

Edmund, king of the East-Angles, having been attacked by the Danes in 870, and unable to resist them, heroically offered to surrender himself a prisoner, provided they would spare his subjects. The Danes, however, having seized him, used their utmost endeavours to induce Edmund to renounce his religion; but, refusing to comply, they first beat him with clubs, then scourged him with whips, and afterwards, binding him to a stake, killed him with their arrows. His body was buried in a town, where Sigebert, one of his predecessors, had built a church; and where afterwards (in honour of his name) a more spacious building was erected, which together with the town was named St. Edmund's-bury; but it is now called *Bury*.

#### 22.—SAINT CECILIA.

Cecilia was a Roman lady, who, refusing to renounce her religion, was thrown into a furnace of

boiling water, and scalded to death. Others say that she was stifled in a bath, a punishment frequently inflicted, at that time, on female criminals of rank. She suffered martyrdom about the year 225. Cecilia is regarded as the patroness of music, and is represented by Raffaele with a regal in her hand.

23.—SAINT CLEMENT.

Clement I was born at Rome, and was one of the first bishops of that place; this see he held about sixteen years; from the year 64 or 65 to 81. He was remarkable for having written two Epistles, so excellent, and so highly esteemed, by the primitive Christians, that the first was for some time considered canonical. Clement was sentenced to work in the quarries, and afterwards, having an anchor fastened about his neck, was drowned in the sea.

23.—O. MART.

Old Martinmas-Day, an antient quarter-day.

25.—SAINT CATHERINE.

Our saint was born at Alexandria, and received a liberal education. About the year 305, she was converted to Christianity, which she afterwards professed with the utmost intrepidity, openly reproving the pagans for offering sacrifices to their idols, and upbraiding the Emperor Maxentius, to his face, with the most flagrant acts of tyranny and oppression. She was condemned to suffer death by rolling a wheel over her body stuck round with iron spikes.

27.—ADVENT SUNDAY.

This and the three subsequent Sundays, which precede the grand festival of Christmas, take their name from the Latin *advenire*, to come into, or from the word *adventus*, an approach.

30.—SAINT ANDREW.

Andrew was the son of James, a fisherman at Bethsaida, and younger brother of Peter. He was condemned to be crucified on a cross of the form of an X; and, that his death might be more lingering, he was fastened with cords.

The order of the Thistle was instituted by Achaius, King of Scotland, in 787, restored by James V, 1540, revived by King James II, in 1687, and re-established by Queen Anne, in 1703. It consists of the sovereign and twelve brethren or knights, making in the whole thirteen, and four officers. The star is worn on the left side of the coat or cloak, and consists of a *St. Andrew's cross*, of silver embroidery, with rays going out between the points of the cross; on the middle a thistle of gold and green upon a field of green, and round the thistle and field a circle of gold, having on it the following motto, in green letters: NEMO ME IMPUNE LACESSIT (no man provokes me with impunity). The badge or jewel is worn pendant to a green riband over the left shoulder, and tied under the arm. It consists of the image of St. Andrew, with the cross before, enamelled and chased on rays of gold, the cross and feet resting upon a ground of enamelled green; and on the back enamelled on a green ground, a thistle gold and green, the flower reddish, with the above motto round it. The collar consists of thistles and sprigs of rue interspersed, and from the centre is suspended the image of St. Andrew; the whole of gold, enamelled.

\*NOV. 1567.—ANNE DE MONTMORENCI DIED.

The Constable Montmorenci deservedly ranks among the illustrious men of his age, though his great qualities were balanced by many defects. In temper he was harsh, austere, and dictatorial, obstinate in his opinions, and impatient of contradiction. He was accounted exceedingly pious, but his religion was much more that of a soldier than of a christian. Brantome gives the following lively picture of it. 'He never failed every morning to say his paternosters, whether he staid at home, or mounted on horseback; but it was a saying in the army, Take care of the paternosters of monsieur the Constable; for his way was, while reciting or muttering them, as any disorders or irregularities came in his view, to cry, Take me up such

a man ; tie that other to a tree ; pass him through the pikes instantly, or shoot them all before my face ; cut me in pieces those fellows who hold out that steeple against the king ; burn this village, set fire to the country for a quarter of a league round ; and all this, without any intermission of his paters, till he had finished them, as he would have thought it a great sin to put them off for another hour, so tender was his conscience.'

This scrupulous devotion, and his intolerant zeal against heresy, have, however, given him the epithet of a *christian hero* ; and he prided himself in nothing more than being the first Christian Baron of Europe. His great political maxim was, 'one faith, one law, one king ;' and he steadily supported the royal authority, amid all the storms and vicissitudes of faction. As a *general* he had little success, yet he maintained the character of a great commander, which he deserved by a long series of useful and active services.

## Astronomical Occurrences

In NOVEMBER 1818.

THE Sun enters Sagittarius at 50 m. past 8 in the evening of the 22d of this month ; and he rises and sets, during the same period, as stated in the following

### TABLE

*Of the Sun's Rising and Setting for every Fifth Day.*

November 1st, Sun rises	12 m. after 7.	Sets	48 m. after 4
6th, - - -	20 - - 7.	- 40 - -	4
11th, - - -	29 - - 7.	- 31 - -	4
16th, - - -	37 - - 7.	- 23 - -	4
21st, - - -	44 - - 7.	- 16 - -	4
26th, - - -	51 - - 7.	- 9 - -	4

### *Equation of Time.*

To find mean or true time from apparent time, as

given by a good sun-dial, subtract the following quantities from the time as marked on the dial, and the remainders will be the true time required; viz.

		m.	s.
Sunday	- - 1st, from the time by the dial	sub.	16 15
Friday	- - - 6th, - - - - -	-	16 12
Wednesday	11th, - - - - -	-	15 49
Monday	- - 16th, - - - - -	-	15 5
Saturday	- 21st, - - - - -	-	14 0
Thursday	- 26th, - - - - -	-	12 34

### *Phases of the Moon.*

First Quarter,	-	5th day,	at 24 m. past	9 morning.
Full Moon,	- -	12th,	- - 49 - -	9 evening.
Last Quarter,	-	21st,	- - 20 - -	2 morning.
New Moon,	- -	28th,	- - 27 - -	4 morning.

### *Moon's Passage over the Meridian.*

The Moon will pass the first meridian at the following epochs during this month, at convenient times for observation, should the weather prove favourable; viz.

November	3d,	at 50 m. after	4 in the evening
	4th,	- 50 - -	5 - - - -
	5th,	- 46 - -	6 - - - -
	6th,	- 37 - -	7 - - - -
	7th,	- 24 - -	8 - - - -
	8th,	- 8 - -	9 - - - -
	9th,	- 51 - -	9 - - - -
	10th,	- 33 - -	10 - - - -
	11th,	- 15 - -	11 - - - -
	19th,	- 0 - -	5 in the morning
	20th,	- 46 - -	5 - - - -
	21st,	- 31 - -	6 - - - -
	22d,	- 15 - -	7 - - - -

### *Eclipses of Jupiter's Satellites.*

The visible eclipses of Jupiter's 1st and 2d satellites this month are the following; viz.

#### EMERSIONS.

1st Satellite,	10th day,	at 5 m. after	5 evening.
2d Satellite,	6th,	- - 1 - -	6 - - -

*Other Phenomena.*

The Moon will be in conjunction with Venus at 39 m. after 1 in the morning of the 2d; and with  $\alpha$  in Scorpio at 22 m. after 7 in the morning of the 28th of this month. Mercury and Venus will also be in conjunction on the 12th, when the former will be  $16\frac{1}{4}$  south of the latter. Mercury will likewise be in his superior conjunction at a quarter of an hour past midnight of the 9th. Saturn will be stationary on the 14th; and Mars in superior conjunction on the 19th, at a quarter past 3 in the morning.

*On COMETS in general, and those of 1807 and 1811 in particular.*

[Concluded from page 267.]

Having furnished our readers with some general notions relative to these bodies, and stated a few particulars respecting the most conspicuous that have recently appeared, we shall conclude with such brief remarks as naturally present themselves to a reflecting mind while contemplating the subject.

Notwithstanding the accumulation of knowledge respecting these wandering bodies, from the first dawn of science to the present hour, it can be regarded only as a department which still requires all the skill and vigilance of modern astronomers to complete; and in this state, not only the remarks of the profound, but the conjectures of the ingenious, merit attention. Under this impression we have noticed M. De Luc's opinions on this subject, fully agreeing with him, that, in conjectures like the present, the analogies on which they are founded can furnish only germs of a theory: time alone can show, by repeated observations, whether they be capable of becoming fruitful; but, at least, they afford matter for reflection and inquiry.

With respect to the circumstance of comets not re-

turning as expected, the hypothesis advanced by the celebrated M. Lambert, in his *Cosmogony*, and Mr. Cole, in his *Theory of Comets*, is perhaps not unworthy of attention. They suppose that the orbit of a comet may not always continue to be elliptical, but that, having passed its perihelion, it acquires so great a velocity, that its centripetal force is overcome by its centrifugal, and that, consequently, the comet continues to fly off in a parabola or a hyperbola till it arrives within the attraction of some of the fixed stars; that this attraction may give it a new direction, and increase its velocity till it come to an apsis below that star, whence it may again fly off in a similar curve, till its direction is again changed by the attraction of some other star, and thus visit many different systems. If this hypothesis be admitted, it is not difficult to conceive that there may be comets which are not attached to any particular system, but may be common to many, and which, by visiting each in succession, make, as it were, the tour of the universe. The following conjecture of *Baron Zach* embraces both this hypothesis and that of M. De Luc. He observes, 'Why may not comets appear sometimes luminous, at others dark? The comet of 1770, therefore, might exist sometimes in an opaque and sometimes in a phosphorescent state; and hence, perhaps, and from the perturbative power of the larger and more dense bodies, the unfrequency of their return may be explained. They come back, and we do not see them; they are present, and we do not perceive them.' From this it would result, that the same comet may sometimes move in one conic section, and, at others, in another; and that those which move in ellipses are not always visible, even in their perihelia.

The idea, however, of comets being opaque bodies is connected with consequences the most extensive, and conceptions the most sublime. For, if the universe be regarded as bearing the impressions, partaking of the character, and answering the benevolent in-



tentions of its Great Author (and the contrary cannot be admitted), we are inevitably led to the conclusion, that it ought to contain the greatest number of moving and habitable bodies of which it is capable, without involving disorder and confusion. With this inference, however, the great eccentricity of most of the cometary orbits has been thought to be irreconcilable, with respect to both the number of moving bodies in the universe, and their habitability, in consequence of the insupportable extremes of heat and cold to which they were supposed to be subject in the different parts of their orbits. With respect to the first of these opinions, *M. Lambert* observes, that ‘the most perfect plan of our system will be that into which enters the greatest number of orbits, all separated from each other, and which in no point intersect one another. If then we should be able to prove that the orbits of the comets correspond to this end better than that of the planets, the reason of their superiority in point of number must be seen and admitted by minds of the most common capacity.’ He then discusses the question, whether the greater number of elliptical or circular orbits can be most conveniently introduced into the solar system; and, on the principles of the Newtonian philosophy, determines in favour of the former figure; and shows that the eccentric orbits of comets, instead of being irreconcilable with the wisdom which is otherwise manifest in the works of creation, furnishes additional proofs that the greatest possible perfection obtains in the universe at large. There is also reason to believe that the number of comets may greatly exceed what is generally conceived; and the learned author, above referred to, after considering the subject, asserts that ‘a very moderate estimate will give motion in our solar system to at least five hundred millions of comets!’

Should future observations prove that comets are opake bodies, and of the nature supposed by *M. De Luc* (and *Dr. Herschel’s* observations on the Sun and

the comet of 1807 appear to countenance this theory), the objections relative to their being habitable, on account of the extremes of heat and cold to which they were supposed to be subject, will lose all their force; and it must be admitted, that each is susceptible of affording sustenance and enjoyment to myriads of rational and intelligent beings.

From a serious reflection upon the facts that have been stated, and the observations that have been offered, not only in the preceding parts of this volume, but in the course of the whole work, will it not appear that the opinion of those who maintain that all the vast globes which with us roll round the Sun, and with us participate in his vivifying influence, are desolate and destitute of inhabitants, is unsupported by reason, and unworthy to be classed among the deliberate sentiments of a rational and thinking being? While the contrary supposition exalts the wisdom and benevolence of creative design, and magnifies the goodness of a superintending Providence far beyond our utmost conceptions; and includes all created nature in that harmonic order which characterizes those minute parts which fall more immediately under our contemplation. Viewing this vast assemblage of moving bodies as being all regulated by the operation of one general law, induced the celebrated M. Lambert, above referred to, to exclaim, ‘What a delightful, what an enchanting, spectacle is this immense machine, which goes on and maintains its infinitely diversified motions by the most simple of all laws, by the sole principle of gravitation! This is the master-piece of creative intelligence; an object of admiration to men and angels!’

#### *On the MOTION and ABBERRATION of LIGHT.*

Having treated of the various heavenly bodies which are perceived either by direct or reflected light, we shall now offer a few observations relative to that substance or medium which not only renders them vi-

sible, but embraces the whole of the universe in its action. *M. Havy* has justly observed, that 'there is no branch of philosophy more deserving of our study than light, whether we consider its beauty, or the multiplicity of phenomena it presents. The advantages we derive from the fluid that enlightens us are sufficient of themselves to excite the closest attention, that we may understand its various properties. If air, serving as the vehicle of speech, enables us to carry on an intercourse of thought with our fellow-creatures, how greatly is that intercourse improved by light, which renders their image present to us—their image, which has so many things to say! The eye, more susceptible than the other senses of multifarious impressions, by the aid of light takes in at once in bodies the forms by which they are limited, the colours that embellish them, their relative positions, and the motions by which they are transported from one point of space to another. It discriminates all those modifications that seem to sport in a thousand different ways in that vast diversity of objects to which a single look can extend itself.

'Nor are these all the advantages we derive from its properties. Beyond the globes that shine over our heads, there are other luminaries which the eye is unable to reach on account of their immense distance, while near us a thousand organized beings equally escape our observation, from their minuteness. Light, by being bent out of its direct course by passing through transparent substances bounded by curvilinear surfaces, has enabled us to perceive these two kinds of infinity, has opened to astronomy a new heaven, and a new field to natural history.'

Various opinions have been entertained relative to the nature of light, and numerous experiments and inquiries have been made respecting it; and there is not any branch of philosophy which presents a wider field for the exercise of human sagacity, nor

any in which the genius of Newton shines with greater lustre. But as it is in its effects rather than its nature that we view it in connection with astronomy, our remarks must be chiefly confined to them. The sacred historian makes light the first of created things, and the immortal Milton has expressed the same sentiment in one of the noblest invocations that poetry can boast :—

Hail, holy light, offspring of Heaven first-born,  
Or of the Eternal co-eternal beam,  
May I express thee unblamed? since God is light,  
And never but in unapproached light  
Dwelt from eternity, dwelt then in thee,  
Bright effulgence of bright essence increate.  
Or hearest thou rather, pure ethereal stream,  
Whose fountain who shall tell? Before the Sun,  
Before the heavens thou wert; and at the voice  
Of God, as with a mantle didst invest  
The rising world of waters dark and deep,  
Won from the void and formless infinite.

The following poetical stanza is also very expressive of our knowledge of its absolute nature, and of the general effects it produces :—

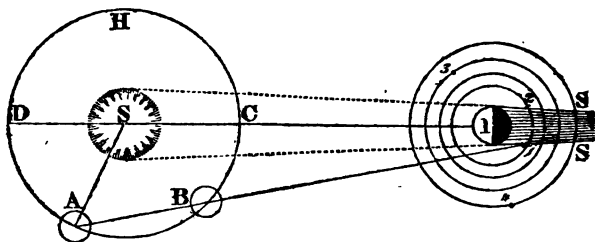
Behold the light emitted from the Sun ;  
What more familiar, and what more unknown ?  
While by its spreading radiance it reveals  
All Nature's face, it still itself conceals.

It is now generally admitted by philosophers that light flows directly from the Sun and other self-luminous bodies ; and even the inconceivable velocity with which it moves was not sufficient to elude the all-searching power of genius, and has now become the subject of human calculation.

The idea of measuring the velocity of light was first suggested to the mind of M. *Roemer*, a Danish philosopher, by the eclipses of Jupiter's satellites, by which he perceived that light occupied about eight minutes in passing from the Sun to the Earth. As this is one of the most curious problems that has been solved by human ingenuity, and admits of a familiar illustration, we shall insert the following

from Professor *Bonnycastle's* excellent *Letters on Astronomy*.

‘ Let A and B, in the following figure, be the Earth in two different points of its orbit, whose distance from each other is equal to the Earth’s distance from the Sun; it is then plain, that, if the motion of light were instantaneous, the satellite I would appear to a spectator at A to enter into Jupiter’s shadow S S, at the same moment of time as to another spectator at B.



‘ But from a great number of observations it was found, that when the Earth was at B, the immersion of the satellite into the shadow happened sooner, by about eight minutes, than when the Earth was at A, and therefore the motion of light must be progressive, or such as would carry it through a space equal to the radius of the Earth’s annual orbit in about eight minutes of time. So that if the Sun were annihilated, we should see him for eight minutes afterwards; and if he were again created, it would be eight minutes before we could observe him.

‘ The same thing may also be shown thus: the instant when any of these eclipses will happen can be easily determined by calculation, because the times in which they perform their revolutions are known; and as it is constantly found by observation, that any one of the satellites is eclipsed about sixteen minutes sooner when the Earth is nearest to Jupiter than when it is farthest from him, it is evident that this must be occasioned by the time that light takes in moving through the diameter of the Earth’s orbit;

for that these accelerations are not owing to any inequalities in the motions of the satellites themselves, is plain, because they are always affected alike, in whatever parts of their orbits they are eclipsed.

' This explication furnishes us with the solution of one of the most curious problems that ever was attempted ; which is that of determining the velocity of light. The minutest particles which are thrown off from the body of the Sun, move through a space of ninety-three millions of miles in eight minutes ; which is about a million of times swifter than the motion of a cannon-ball, when it is first projected from the mouth of a piece of ordnance ; a rapidity too great for the imagination to follow, or the mind to comprehend. And yet, prodigious as the motion appears, there may be stars whose light has not reached us since the creation of the world. This is the universe of the poet :

—————Without bound,  
Without dimension, where length, breadth, and height,  
And time and place, are lost.

[To be continued.]

## The Naturalist's Diary

For NOVEMBER 1818.

How has great Nature's hand, that works unseen  
Through the revolving seasons, changed the scene !  
Stripped of its fruits and flow'rs and verdure gay,  
Nor one autumnal beauty left, the Earth,  
Wrapt in her dusky mantle, sees resigned  
Stern Winter's wayward reign commence. At first,  
Chill rain incessant pouring, floods the fields ;  
And from opposing quarters mighty winds,  
On the same errand bent, with busy hands,  
Tear from the groaning woods the ling'ring leaves.  
The rattling hail descends, undoubted pledge  
Of frost and snow and tempest yet to come.

FOWLING, a Poem.

NOVEMBER is, usually, a very gloomy month, yet there are some intervals of clear and pleasant wea-

ther: the mornings are, occasionally, sharp, but the hoarfrost is soon dissipated by the *Sun*, and a fine open day follows.

The trees are now stripped of their foliage. The separation of the leaves from their branches is termed the *fall*; and, in North America, the season in which this takes place is universally known by that name. The fall of the leaf can be considered only as a 'sloughing or casting off diseased or worn-out parts,' whether the injury to their constitution may arise from external causes or from an exhaustion of their vital powers. Hence a separation takes place, either in the footstalk, or more usually at its base, and the dying part quits the vigorous one, which is promoted by the weight of the leaf itself, or by the action of autumnal winds upon its expanded form. Sometimes, as in the hornbeam, the beech, and some oaks, the swelling of the buds for the ensuing season is necessary to accomplish the total separation of the old stalks from the insertions.

#### LA FEUILLE.

De la tige détachée  
 Pauvre feuille desséchée  
 Ou vas-tu ? — je n'en sais rien ;  
 L'orage a frappé le chêne  
 Qui seul était mon soutien ;  
 De son inconstante haleine,  
 Le Zephyr et l'Aquilon,  
 Depuis ce jour me promène  
 De la forêt à la plaine,  
 De la montagne au vallon ;  
 Je vais où le vent me mène  
 Sans me plaindre ou m'effrayer  
 Je vais où va toute chose,  
 Ou va la feuille de rose,  
 Et la feuille de laurier.

To the English reader, the following very literal transcript of the original, for which we are indebted to a friend, may prove acceptable :—

*The LEAF.*

Parted from thy parent bough,  
 Withered leaf, where wanderest thou?  
 Alas! I know not, reck not where:  
 The oak, beneath whose fostering care  
 I flourished, tempests have laid low:  
 Since when, th' uncertain winds, that blow  
 Hither and thither in their sport,  
 Have borne me on.—I neither court  
 Nor heed their faithless breath—but stray  
 From the forest's gloomy way,  
 To the bare and open plain;  
 Rest there a moment—and again  
 From the valley to the hill  
 Wander, at their fickle will.  
 I go where all things earthly tend—  
 Where all must have one common end;  
 As well the gay and flaunting rose,  
 As the sad laurel, weeping o'er its woes.

P.

Leaves undergo very considerable changes before they fall; ceasing to grow for a long time previous to their decay, they become gradually more rigid and less juicy, often parting with their pubescence, and always changing their healthy green colour to more or less of a yellow, sometimes a reddish hue. 'One of the first trees that becomes naked is, the walnut; the mulberry<sup>1</sup>, horse-chesnut, sycamore, lime<sup>2</sup>, and ash, follow. The elm preserves its verdure for some time longer: the beech and ash are the latest deciduous forest trees in dropping their leaves. All lopped trees, while their heads are young, carry their leaves a long while. Apple-trees and peaches remain green very late, often till the end of November: young beeches never cast their leaves till spring, when the new leaves sprout, and push them off: in the autumn, the beechen leaves turn of a yellow deep chesnut colour.'

<sup>1</sup> The mulberry waits for a sharp frost, and then almost all the leaves fall at once. The mulberry is generally stripped in one night, or the morning after a frost, as soon as the sun begins to have power to thaw it.

<sup>2</sup> Sometimes in September.



The decay and fall of leaves have been favourite themes with poets and philosophers. The first they furnish with beautiful descriptions; the latter with solemn contemplations and pathetic moral sentiment. There is something, indeed, extremely melancholy in that gradual process by which the trees are stripped of all their beauty, and left so many monuments of decay and desolation. Homer, the venerable father of poetry, has deduced from this succession of springing and falling leaves, a very apposite comparison for the transitory generations of men :—

Like leaves on trees the race of man is found,  
Now green in youth, now withering on the ground.  
Another race the following spring supplies,  
They fall successive, and successive rise;  
So generations in their course decay,  
So flourish these when those are past away<sup>1</sup>.

POPE.

The Virginia creeper (*hedera quinque-folia*) is particularly rich and beautiful in the autumnal months, with its leaves of every hue, from a bright to a dark green and deep crimson.

That highly-esteemed fish, the *salmon*, now ascends rivers to deposit its spawn in their gravelly beds, at a great distance from their mouths. The stock-dove (*columba ænas*), one of the latest winter birds of passage, arrives from more northern regions, towards the end of this month. The females and young of the brown or *Norway rat* now leave their holes at the sides of ponds and rivers, to which they had betaken themselves in the spring, and repair to barns, out-houses, corn-stacks, and dwellings.—See our last volume, p. 338.

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<sup>1</sup> See more on this subject in T. T. for 1817, p. 333, and in the Naturalist's Diary, for October and November, in our former volumes. A popular description of *Forest Trees*, alphabetically arranged, at the close of the different months, will be found in T. T. for 1816.

The *woodman* now repairs to the woodlands to fell coppices, underwood, and timber. Some particulars of forest scenery, in this month, are thus noticed by Mr. GISBORNE :—

Now chiller evenings, and the near approach  
Of winter, from the anxious cottage draw  
Yon group in search of fuel. Youthful hands  
Gather the scattered sticks ; or wield the pole  
Armed with light sickle, and the mouldering bough  
Pluck down with tiptoe efforts oft renewed :  
While the dead stump that sturdy peasant hews ;  
Or, looking watchful round lest prying eyes  
Observe him, from the oak by tempest torn  
Rends off the shivered ruin with its load  
Of leafy spray. Backward he throws his weight,  
And tugs with iron grasp : in vain the branch  
Recoils with start elastic, and in vain  
Still by tough splinters to the trunk adheres.  
And lo, yon boy in wanton mischief tears  
The ivy twisted in contortions rude  
Round the tall maple, and the stem divides  
With stroke malicious. Soon the verdant mass,  
Robbed of its wonted nutriment, shall fade.  
Yet shall the lifeless tendrils still maintain  
Their grasp ; and, deaf to Spring's reviving call,  
To May's bright greens a dusky foil oppose.

The farmer usually finishes his ploughing this month. Cattle and horses are taken into the farm-yard ; sheep are sent to the turnip-field ; ant-hills are destroyed ; and bees are put under shelter.

One of the greatest improvements in modern agriculture is the growing of what are called *green crops* for the live stock, great part of which used formerly to be killed off at this time. Those fields which once exhibited a barren aspect at this season, now wear a green and cheerful appearance with turnips<sup>1</sup>, the numerous tribes of cabbages and kale, mangel wurzel, carrots, potatoes, &c.

*Bat-fowling*, for the purpose of catching sparrows,

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<sup>1</sup> This is particularly the case in Norfolk and Suffolk, where there is but little pasture land, and great quantities of turnips are grown for the winter food of cattle.

is often practised by the farmer at this season. Birds are also frequently caught in a barn at night, by placing a lanthorn with only a small opening in it in one corner of the barn, and beating about to disturb the birds, when they fly to the light, and may be taken by hand.

For a *poetical bouquet* of wild flowers, an acceptable present in the gloomy month of November, our readers may turn to our last year's volume, p. 339.

## DECEMBER.

DECEMBER was called *winter-monat* by the Saxons, but after they were converted to Christianity it received the name of *heligh-monat*, or holy month.

### Remarkable Days

In DECEMBER 1818.

\*1. 1521.—LEO X DIED.

WHEN Leo ascended the throne, the arts were at their meridian. He found greater talents than he employed, and greater works commenced than he completed. Leonardo da Vinci, Michel Angelo, and Raffaello, performed their greatest works before the accession of Leo X; Bramante, the architect of St. Peter's, died in the second year of his pontificate; and Da Vinci and Michel Angelo shared none of his favours. It appears, therefore, that the glorious 'age of Leo,' so much spoken of, was not created by his patronage, but rather the consequence of the state of the *arts* when he ascended the throne. Yet this pontiff must not be deprived of the merit that justly belongs to him. He drew together the learned men of his time, and formed eminent schools, and he did much in promoting the *art of printing*, then of incalculable importance to literature. In these re-

spects, and on account of the share he had in precipitating the *Reformation*, his short pontificate of eight years and eight months must be allowed to form one of the most interesting periods in papal history, and worthy of the illustration it has received from the elegant pen of Mr. Roscoe.

\*2. 1805.—BATTLE OF AUSTERLITZ.

6.—SAINT NICHOLAS.

Nicholas was Bishop of Myra, in Lycia, and died about the year 392. He was of so charitable a disposition, that he portioned three young women, who were reduced in circumstances, by secretly conveying a sum of money into their father's house. Milner, in his *History of Winchester*, describes a curious font preserved in the cathedral of Winchester, and applies the carvings on it to the life and miracles of this saint. The annual ceremony of the *boy-bishop*, once observed on this day, is described at length in *T. T.* for 1814, p. 306.

8.—CONCEPTION OF THE VIRGIN MARY.

This festival was instituted by Anselm, Archbishop of Canterbury, because William the Conqueror's fleet, being in a storm, afterwards came safe to shore. The council of Oxford, however, held in 1222, permitted every one to use his discretion in keeping it.

\*11. 1718.—CHARLES XII DIED, ÆT. 36,

After a reign of twenty-one years. He spoke little, and had a bashful awkwardness in conversation, proceeding from conscious defects. He was, indeed, a mere soldier, and his mind was little opened by knowledge of any kind. In religion, he was cold and indifferent, but had strongly imbibed the principle of fatalism, to which much of his intrepidity was attributed. On the whole, though in many respects an object of admiration, and in some of applause, he was neither amiable nor estimable. If he began by being the deliverer of his country, he became in his progress its bane and oppressor; and

no king ever less consulted the happiness of the people over whom it was his lot to reign. His expedition to Russia was equally disastrous with that of the modern Charles; the greater part of his army falling victims to the extreme rigour of the climate and season.

### 13.—SAINT LUCY.

This virgin martyr was born at Syracuse. She refused to marry a young man who paid his addresses to her, because she had determined to devote herself to religion, and, to prevent his importunities, gave her whole fortune to the poor. The youth, enraged at this denial, accused her before Paschasius, the heathen judge, of professing Christianity; and Lucy, after much cruel treatment, fell a martyr to his revenge, in the year 305.

### 16.—O SAPIENTIA.

This is the beginning of an anthem in the Latin service to the honour of Christ's advent, which used to be sung in the church from this day until Christmas Eve.

### \*16. 1815.—DUKE OF NORFOLK DIED.

The following were the *style* and *titles* of his Grace as proclaimed at his funeral, after the service, by the deputy garter:—

The Most High, Mighty, and Most Potent Prince,  
CHARLES HOWARD Duke of NORFOLK!

Earl Marshal!

And Hereditary Earl Marshal of England!

Earl of Arundel Castle!

Earl of Surrey! Earl of Norfolk! Earl of Norwich!

Baron of Mowbray!

Baron of Howard! Baron of Segrave!

Baron of Brewese of Gower!

Baron Fitz-Alan! Baron Warren! Baron Clun!

Baron Oswaldestre! Baron Maltravers!

Baron Greystock! Baron Furnival! Baron Verdon!

Baron Lovetot! Baron Strange!

and Premier Baron Howard of Castle-Rising!

Premier Duke, Premier Earl, Premier Baron of England!

And Chief of the illustrious Family of the HOWARDS!

For an account of the Duke's life we refer to 'The Annual Biography and Obituary for 1817,' p. 114.

\*16. 1798.—THOMAS PENNANT DIED.

His numerous works on Natural History display great clearness and judgment in the arrangement, and his descriptions are concise, energetic, and exact: he is regarded both by native and foreign naturalists as very respectable authority. His various 'Tours' are very entertaining, and are a fund of antiquarian knowledge.

\*17. 1816.—EARL STANHOPE DIED.

The political character of Lord Stanhope, as well as the brilliant but eccentric speeches which he made in the House of Lords, are fresh in the recollection of our readers. To possess a competent idea of his merits, as a philosopher and a man of science, it is only necessary to recollect his opinions and his pursuits. The 'Stanhope Press;' 'the improved Stereotype;' the 'Stanhope Monochord;' 'the preservation of buildings from fire;' 'the return stroke in the Franklinian system;' the facilities afforded to home navigation by means of his 'improvements in the locks of canals;' and the advantages hereafter to be reaped from both domestic and foreign navigation, by means of the new agent of 'steam;' all connect this great man with the history, not of England or Europe alone, but with the imperishable annals of the arts and sciences.—See an interesting sketch of the life of Lord Stanhope, in the Annual Biography and Obituary for 1817.

21.—SAINT THOMAS THE APOSTLE.

Thomas, surnamed *Didymus*, or the Twin, was a Jew, and in all probability a *Galilean*. There are but few passages in the gospel concerning him. Thomas is said to have suffered martyrdom in the same city, being killed by the lances of some people instigated by the Bramins.

This is the shortest day, and is, at London, 7 h. 44 m. 17 s.; allowing 9 m. 5s. for refraction.

## \*21. 1815.—DR. VINCENT DIED.

Many years head master of Westminster school, and afterwards Dean of Westminster, Dr. Vincent was long known to the world as a scholar and a man of the most exemplary life. His 'Voyage of Nearehus,' and 'Periplus of the Erythrean Sea,' prove that both antient geography and navigation were equally familiar to him. A volume of 'Sermons,' lately published, places him high in the list of writers in this branch of theology.

## \*21. 1815.—GUYTON DE MORVEAU DIED.

This celebrated French chemist was a native of Dijon. No one exerted himself with greater assiduity, during a very long series of years, in public and private life, than Monsieur Guyton de Morveau. He was a public Professor of Chemistry at Dijon and Paris for upwards of thirty years; filled the duties of Director-general of the Polytechnic School for a considerable space of time; and was for twenty-six years a Member of the National Institute, during which time he furnished several important memoirs and reports to that scientific body, published in its transactions: besides many other papers printed in the *Annales de Chimie*, of which he was one of the earliest and most indefatigable editors.

M. Guyton de Morveau did not live to complete his eightieth year; dying just time enough to avoid the order of *banishment* in which he had been included by the present government of France.

## 25.—CHRISTMAS DAY.

The feast of our Saviour's nativity was undoubtedly celebrated in the early ages of Christianity; for we are told that, under the persecution of Maximinus, that emperor burnt a church at Nicomedia, which was filled with Christians assembled to keep this festival. St. Gregory terms it the *festival of festivals*; and St. Chrysostom, the *chief of all festivals*. It is named *Christmas-day*, from the Latin *Christi Missa*, the Mass of Christ, and thence the Roman Catholic

Liturgy is termed their *Missal* or *Mass Book*. About the year 500, the observation of this day became general in the Catholic church.

In the primitive church, Christmas-day was always preceded by an eve or vigil. When the devotion of the Eve was completed, our forefathers used to light up candles of an uncommon size, which were called Christmas candles, and to lay a log of wood upon the fire, called the *yule-clog* or log.

For many other customs formerly observed in England at this season, see T. T. for 1814, pp. 309-315; T. T. for 1816, p. 337; and for an account of the strange and ridiculous '*Ass's Feast*,' formerly celebrated in this country at Christmas, consult T. T. for 1815, p. 318.

Much of the festivity of this season, which formerly gladdened the hearts of the old and young, has now disappeared; a refinement of manners (with little real improvement we fear), and the increasing difficulties of the times, have, we are sorry to say, in a great measure abolished the hospitality of our forefathers. This is *feelingly* lamented in the following homely lines, copied from a public print:—

In times far back my Christmas fare  
Was turkey and a chine;  
A pudding made of things most rare,  
And plenty of good wine.

When times grew worse, I still could dine  
On goose or roasted pig;  
A glass of grog instead of wine,  
And dance a merry jig.

When poorer grown, my Christmas cheer  
Was beef and pudding plain;  
Instead of grog a pot of beer,  
Nor did I then complain.

But now my mirth is turned to grief,  
For Christmas-day is near;  
No turkey, pudding, goose, nor beef,  
No wine—no grog—no beer.



The following ceremonies are observed at this season at *Marseilles* :— When *Christmas* draws near, every family in easy circumstances sends for a cask of wine, and lays in a stock of southern fruits ; which, as they arrive, may be seen on the quay in large quantities. In the flower-market, orange-branches, with fruit or blossoms, in elegant tubs ; rose-trees, in beautiful pots, &c. are set out for sale ; as also all kinds of toys for children, and laurel-trees, hung with various kinds of southern fruits. The Christmas evening is devoted to universal joy and festivity. Every booth, cellar, coffee-house, &c. is illuminated, and the table of the poor chesnut-roaster has an additional lamp. The theatres give grand ballets ; the gaming-houses balls and *soupers* ; and the streets are crowded through the whole night with people and bands of music. That which is most admired, and which no provincial person ever forgets, even when at the greatest distance from his country, is a sort of sacred entertainment, at which the whole family is present. The relations who have been absent from each other perhaps during the whole year, are to meet on this evening ; those who have been the greatest enemies, pardon each other at Christmas ; marriages are fixed ; married pairs, who have been separated, are at this time again united ; the shyest lover becomes eloquent, and the most coy fair-one becomes kind—every heart dilates with good-will, love, and tenderness, on Christmas evening ! It is well known, that, at a true provincial entertainment, ‘ *Noya* ’ (cake made of honey and almonds), the ‘ *Kalignau*, ’ (a fire of fir-wood dipt in oil and wine), the Turkey-cock, the Muscadel, and the Noes (appropriate songs), are things absolutely indispensable. In the country, where the national character is in all games the most easily to be discovered, the old provincial customs are preserved in still greater purity. Here are prize-races, combats, songs, cock-fighting, climbing, &c., at which, naturally, the flowing bowl is never wanting.

One other pretty custom was formerly much in use in the vicinity of Frejus and Antibes. About four weeks previous to Christmas, the youths of the village serenade all the young women, usually on the Saturday evening, in return for which honour each is obliged to present to the oldest of the youths, called *Aba*, a cake at Christmas, marked with her name. As no one ever neglects to fulfil the obligation, the second day of Christmas brings a splendid collection of the whole village, and the cakes are sold by auction in the following manner:—The *Aba* having mounted a small stage, on which the cakes are placed in baskets, elegantly decorated, he commences, ‘A fine, light, sweet, delicious, charming plum-cake, number one, *Maria Coutelon*.’ The orator, then taking the cake in his hand, proceeds to expatiate on the beauty, notability, and other perfections of the maker. The bidding then commences, and the cake is finally consigned to the richest or most persevering among the bidders. In the same manner one number follows another, until all the cakes are sold; and the money thus produced is applied to a dancing fund.—(See *Mr. Coxe’s Gentleman’s Guide through France*, p. 196.)

\*25. 1676.—SIR MATTHEW HALE DIED.

The early life of Sir M. Hale was that of a student and recluse, and he gave no time or attention to the ordinary calls of social intercourse. Though the bent of his studies was necessarily legal, he enlarged the circle of his inquiries so as to comprehend almost every object of human learning—mathematics, physics, history, philosophy, and, above all, *divinity*. The fruits of this last branch of study are apparent in his works, which contain many excellent tracts and observations on religious subjects.

26.—SAINT STEPHEN.

Stephen was the first deacon chosen by the apostles. He was cited before the Sanhedrin, or Jewish Council, for prophesying the fall of the Jewish Tem-

ple and economy ; and while vindicating his doctrine by several passages of the Old Testament, he was violently carried out of the city, and stoned to death, in the year 33. See *Acts* vii, for his admirable defence.

**\*26. 1780.—DR. FOTHERGILL DIED.**

Few physicians have more liberally bestowed either their professional advice, or their pecuniary aid, at the call of charity ; and few men of his fortune have expended so much in promoting science and useful knowledge. His mode of living was simple and unostentatious, suitable to the principles of the sect (Quakers) to which he belonged. His manners were highly pleasing, and his demeanour in a sick room was singularly calculated to inspire confidence. His conversation abounded with instruction, and was equally cheering and improving to the younger part of his acquaintance, whom he delighted to encourage. It may be added, that he was sincerely pious, and a firm believer in the promises of revelation. His moral character cannot be better summed up than it is by his friend Dr. Franklin, in a letter to Dr. Lettsom :—‘ If we may estimate the goodness of a man by his disposition to do good, and his constant endeavours and success in doing it, I can hardly conceive that a better man has ever existed.’ His works, with a Memoir of his Life, were published by his friend Dr. Lettsom, in three volumes, 8vo.

**27.—JOHN EVANGELIST. See p. 139.**

**\*27. 1784.—PRINCE LE-BOO DIED.**

Mr. Keate’s Narrative of the Shipwreck of the *Antelope*, and account of the *Pelew* Islands, is one of the most interesting books ever published. The abridgment of this work, known by the name of the ‘ History of Prince Le-Boo,’ should be put into the hands of every young person. The unfortunate prince died of the small-pox, and was buried in Rotherhithe churchyard ; a tomb being erected over his grave at

the expense of the East India Company, on which are engraved the following appropriate lines :—

Stop, Reader, stop!—let NATURE claim a tear—  
A Prince of *Mine*, LE-BOO, lies buried here.

#### 28.—INNOCENTS.

The slaughter of the Jewish children, by Herod, is commemorated on this day. The festival is very ancient, for Tertullian and Saint Cyrian call these Innocents martyrs, and Prudentius has written a hymn upon the subject. *Childermas*-day is another name for this feast.

#### \*30. 1691.—HON. ROBERT BOYLE DIED,

A man dear to piety and to science; the inventor of the air-pump, and the founder of *Boyle's Lecture*, which has given rise to so many admirable sets of lectures or sermons. An account of these is prefixed to Dr. Van Mildert's Sermons at Boyle's Lectures, published in 1806, in 2 vols. 8vo.

#### 31.—SAINT SILVESTER.

He was Bishop of Rome; and succeeded Miltiades in the papacy, in 314. Silvester is accounted the author of several rites and ceremonies of the Romish church, as asylums, unctions, palls, corporals, mitres, &c. He died in 334.

## Astronomical Occurrences

In DECEMBER 1818.

THE Sun enters Capricornus at 17 m. past 9 in the morning of the 22d of this month; and he rises and sets at the following times during the same period.

#### TABLE

*Of the Sun's Rising and Setting for every fifth Day.*

December	1st,	Sun rises	56 m. after 7.	Sets	4 m. after 4
	6th,	- - -	1 - -	8. -	59 - - 3
	11th,	- - -	5 - -	8. -	55 - - 3
	16th,	- - -	7 - -	8. -	53 - - 3
	21st,	- - -	8 - -	8. -	52 - - 3
	26th,	- - -	7 - -	8. -	53 - - 3
	31st,	- - -	5 - -	8. -	55 - - 3

*Equation of Time.*

To find mean time from that indicated by a good sun-dial, add or subtract the quantities as marked in the following table to or from those given by the dial, viz :—

		m. s.
Tuesday,	- 1st, from the time by the dial <i>subtract</i>	10 49
Sunday,	- 6th, - - - - -	8 49
Friday,	- 11th, - - - - -	6 36
Wednesday,	16th, - - - - -	4 14
Monday	-- 21st, - - - - -	1 45
Saturday,	- 26th, to the time by the dial <i>add</i>	0 43
Thursday,	- 31st, - - - - -	3 13

*Phases of the Moon.*

First Quarter,	4th day, at 19 m. after 7 evening
Full Moon,	12th - - 19 - - 4 afternoon
Last Quarter,	20th - - 32 - - 7 evening
New Moon,	27th - - 52 - - 2 afternoon.

*Moon's Passage over the Meridian.*

The Moon will pass the first meridian at the following times during this month, which will be convenient for observation if the weather be favourable.

December	2d, at 33 m. after 4 evening
	3d, 27 - - 5 - -
	4th, 15 - - 6 - -
	5th, 0 - - 7 - -
	6th, 43 - - 7 - -
	7th, 25 - - 8 - -
	8th, 7 - - 9 - -
	9th, 51 - - 9 - -
	10th, 37 - - 10 - -
	19th, 0 - - 5 morning
	20th, 42 - - 5 - -
	21st, 24 - - 6 - -
	22d, 8 - - 7 - -
	23d, 54 - - 7 - -

*Eclipses of Jupiter's Satellites.*

The following are all the eclipses of Jupiter's first and second satellites which will be visible at Greenwich this month, viz.

## EMERSIONS.

1st Satellite, 3d day, at 18 m. after 5 evening  
 2d Satellite, 8th, - 48 - - 5 - -

*Other Phenomena.*

Venus will be stationary on the 6th of this month; and in her inferior conjunction at 3 in the afternoon of the 26th. Mercury and Jupiter will be in conjunction on the 21st, when Mercury will be  $79\frac{1}{2}$  south of Jupiter. Mercury will also attain his greatest elongation on the 22d. Uranus will be in conjunction on the 12th, at a quarter before 10 in the evening; and the Moon will be in conjunction with  $\alpha$  in Scorpio at 35 m. after 6 in the evening of the 25th of this month,

*On the MOTION and ABERRATION of LIGHT.*

[Concluded from p. 293.]

The velocity of light having been discovered by Roemer, as stated under the head of Astronomical Occurrences in last month, it was afterwards very satisfactorily confirmed by Dr. *Bradley*, at the same time that he discovered its *aberration*, which is one of the most curious and delicate discoveries noticed in the history of the celestial phenomena. Aberration is a certain apparent motion of the heavenly bodies arising from the progressive motion of light, and the annual motion of the Earth in her orbit. This apparent motion of the heavenly bodies is so very minute, that it could never have been discovered except by the most accurate observations: it was not even so much as suggested by theory. The history of human knowledge presents numerous instances in which the means that have led to the discovery of important facts are not less singular than the facts themselves. A fortunate accident frequently leads to truths which the most abstruse speculations could never have developed. The absurd attempts that were made to find the philosopher's stone gave rise to some of the noblest discoveries in chemistry; and in the present case, those observations that were intended to ascer-

tain the parallax of the stars, terminated in confirming the motion, and making known the aberration of light. Before the time of Roemer, it was generally conceived that the motion of light was instantaneous; but from observations made on the eclipses of Jupiter's satellites and the apparent change of place of the fixed stars, this is now known to be incorrect. Nor is this removal of error the only advantage that resulted from the discovery; since it necessarily proves the motion of the Earth in its annual orbit, and consequently affords a new confirmation of the truth of the Copernican system.

Dr. Bradley related the history of this discovery in No. 406 of the Philosophical Transactions; which exhibits the knowledge, sagacity and perseverance of that eminent astronomer in a strong light; but our limits oblige us to refer to the doctor's own account for the particulars, and only permit us to make the following remarks on this subject. The annual motion of the Earth had been much doubted, and was the subject of a warm contest among the philosophers of that time. - Those who defended that motion conceived the idea of deriving an incontestible proof from the annual parallax of the fixed stars, if these should be within such a distance from the Earth as to render this parallax sensible, and instruments could be obtained and observations made that were capable of ascertaining it. Before M. *Picard* made his observations on the pole star, in 1672, it was thought that the stars did not change their positions; but he conceived that he had discovered, from a series of observations continued for about 10 years, that this star had an apparent motion of about 40" a year. In 1674, Dr. *Hook* published an account of his observations on the star  $\gamma$  Draconis, which he thought was 23' more northerly in July than it was in October. *Flamsteed* found that the declination of the pole star, in 1689, was 40" less in July than in December. In this state of uncertainty with respect to the apparent

motion of the fixed stars, and the cause from which it sprung, Dr. *Bradley* and the *Honourable Samuel Molineux* undertook a series of observations, in 1725, for the purpose of verifying those which Dr. *Hook* had made about half a century before.

The instrument with which they made their observations was much more accurate than those which had been previously used for the same purpose. The first observation was made on the 3d of December 1725, and the situation of the bright star  $\gamma$  in the head of *Draco* carefully marked. In the beginning of the following March, this star was found to be 20" more southerly than it was at the time of the first observation. From that time the star continued to move northward till the following September, when it was found to be about 20" more towards the north than it was when first observed, and more than 39" to the north of the point it had occupied in the preceding March. From September it again appeared to return towards the south, till in December it arrived at the situation in which it was first observed, allowing for the difference of declination occasioned by the precession of the equinox.

Having ascertained this fact, Dr. *Bradley* continued his observations till he had not only fully satisfied himself of the real existence of these phenomena, but also of the general laws which they follow. He then began to search for the cause by which they were produced, and which their regularity had induced him to believe was permanent. The first idea that suggested itself was the nutation of the Earth's axis; but this he soon found was insufficient to account for the phenomena as given by observation. The next suggestion was an alternation in the direction of the plumb line, by which the instrument was adjusted; but this he soon found to be insufficient also. The effects of refraction were then applied, but without affording any satisfaction on the subject. At last his natural sagacity, aided by continued reflection,



enabled him to perceive that the progressive motion of light, combined with the annual motion of the Earth in her orbit, would fully explain all the phenomena. This arose from conceiving that, if the motion of light was not instantaneous, the apparent place of an object would not be the same when the eye was in motion as when it was at rest, except the motion was in a line passing through the object and the eye; and that, if the eye were in motion in different directions, the apparent place of the object would of course be different. Hence the motion of the Earth about the Sun being elliptical, the apparent motion of the star ought to participate of the same nature; which was agreeable to the observations.

The following illustration and the annexed diagram will render the aberration of light more familiar to such of our readers as are not already conversant with the subject.

Let AB represent a part of the Earth's orbit, and CB a ray of light proceeding from a star perpendicular to the line AB. Then if the eye were at rest at B, the object would appear in the direction BC, whether the transmission of the light was instantaneous or progressive; but if the eye was in motion from A towards B, and the motion of light was such that its velocity was to the velocity of the eye as BC to BA, that particle of it by which the object would be discerned when the eye comes to B will be at C when the eye is at A. The star will therefore appear to be in the direction AC; and as the Earth moves through the equal parts of its orbit denoted by Aa, ab, bc, &c., the light which proceeds from the star and reaches the eye of the observer at B, will appear

successively in the directions *ae*, *bf*, *cg*, &c., which are parallel to the former *AC*; so that, when the eye of the observer arrives at *B*, the object will appear in the direction *BD*.

Though the real place of an object is in a line perpendicular to that in which the eye of the observer moves, yet the apparent place of the same object will be in the direction in which the ray of light meets the eye; and the difference between the true and apparent places will therefore be greater or less according to the difference between the velocity of light and that of the eye. From numerous observations, made during a space of three years, Dr. Bradley found that the apparent places of the stars differed from their true places by about  $20''$ ; by which it is proved that the velocity of light is about 10313 times as great as the velocity of the earth in her orbit; from which he found that light passed from the Sun to the earth in  $8' 7''$ , which is very nearly the same time as had been deduced by Roemer, from very different phenomena. These, therefore, mutually confirm each other, and establish the progressive motion of light beyond a doubt. The time, however, which light actually occupies in passing from the Sun to the earth, as determined by the most accurate observations of more modern astronomers, is  $8' 13''$ .

From the rules which were given by Dr. Bradley, and demonstrated by subsequent mathematicians, the following results have been obtained. Each of the stars appears to describe, in the space of a year, by means of its aberration, a small ellipse, having its transverse axis equal to  $40''$ , and the conjugate axis, which is perpendicular to the ecliptic, equal to the transverse multiplied by the sine of the star's latitude, the radius being 1.

The greatest aberration in *longitude* is equal to  $20''$  divided by the cosine of the star's latitude; and the aberration in longitude for any time is equal to  $20''$  multiplied by the cosine of the elongation of the star

for the same time, and divided by the cosine of its latitude. This aberration is subtractive in the first and last quadrants of the difference between the longitudes of the Sun and the star; and additive in the second and third quadrants.

The greatest aberration in *latitude* is equal to  $20''$  multiplied by the sine of the star's latitude; and the aberration in latitude for any time is equal to  $20''$  multiplied by the sine of the star's latitude, and again by the sine of its elongation. In this case the aberration is subtractive before the opposition, and additive after it.

The greatest aberration in *declination* is equal to  $20''$  multiplied by the sine of the angle of position, and divided by the sine of the difference of longitude between the Sun and star when the aberration in declination is nothing. The aberration in declination at any time is also equal to the greatest aberration multiplied by the sine of the difference between the Sun's place at the given time and his place when the aberration is nothing.

The greatest aberration in *right ascension* is equal to  $20''$  multiplied by the cosine of the angle of position, and divided by the sine of the difference between the longitudes of the Sun and star when the aberration in right ascension is nothing. The aberration in right ascension at any other time is also equal to the greatest aberration multiplied by the sine of the difference between the Sun's place at the given time and his place when the aberration is nothing.

The *diurnal* motion of the earth about its axis ought also to produce an aberration, which will be to the aberration produced by its annual motion, as its diurnal movement is to its annual. This aberration for any point on the equator has been found to be  $0''.30124$ , and for any other point whose latitude is  $L$ , it is  $0''.30124 \cos L$ . Hence, from Paris, it is  $0''.19823$ ; for the latitude of the Royal Observatory at Greenwich it is  $0''.18759$ , and for London,  $0''.18746$ . Consequently the aberration arising from

the diurnal motion of the earth is so small, that it may in general be safely neglected.

With respect to the aberration of the Sun and the Moon, it may be observed, that the mean distance of the Moon is expressed by  $\frac{1}{\sin 57'}$ , the mean distance

of the Sun being  $= \frac{1}{\sin 8''.6}$ , and the time in which

his light arrives at the earth  $8' 13''$ ; the time of light passing from the Moon to the earth will be

$$\frac{8''.6 \sin 8' 13''}{57'} = 1''.2116.$$

The motion of the Moon in this time is therefore  $0''.665$ , which is the mean aberration of the Moon in longitude. Her aberration in latitude is still less, since it is multiplied by the sine of the latitude.

The aberration of the Sun in longitude is nearly constant, and is  $20''.25$ ; and when it is necessary to have his true place, as in calculating the geocentric places of the planets, this quantity must be added to the Sun's place as taken from solar tables, or from an Ephemeris.

The aberration of a planet is equal to the geocentric motion of the planet, or the space through which it appears to move, as seen from the earth, in the time light occupies in passing from the planet to the earth. This time is easily found when the distance of the planet from the earth is known; for then, as the distance of the Sun is to the distance of the planet, so is  $8' 13''$  to the time required. And then the geocentric motion of the planet in that time will give its aberration.

It is evident that the aberration in longitude will be greatest, and that the aberration in latitude will be very small, because the planets deviate very little from the plane of the ecliptic; so that this last is generally neglected in all computations, as being nearly insensible. The greatest is that of Mercury, the maximum of which is only about  $4''$ ; and that of all the

others is much less. The aberrations in declination and right ascension depend upon the situation of the planet in the zodiac. The aberration in longitude being the geocentric motion of the planet, will consequently vary as that apparent motion varies; and therefore will be nothing when the planet is stationary, and the greatest in the superior planets when they are in opposition to the Sun, but in the inferior planets when they are in their superior conjunction. The maximum aberrations for the old planets, when their distance from the Sun is least, are as follow:—

Mercury	-	-	-	-	-	-	-	59'
Venus	-	-	-	-	-	-	-	43' 2
Mars	-	-	-	-	-	-	-	37' 8
Jupiter	-	-	-	-	-	-	-	29' 8
Saturn	-	-	-	-	-	-	-	27' 0
The Moon	-	-	-	-	-	-	-	4

The aberrations of the planets in longitude vary between these numbers and nothing, according to their situations. The aberration of the Sun is not subject to sensible variation, but is constantly about 20'' 25; but this may cause a change in his declination from 0 to 8'', which is greatest at the equinoxes and nothing at the solstices.

## The Naturalist's Diary

For DECEMBER 1818. —

'Tis winter, cold and rude,  
 Heap, heap the warming wood;  
 The wild wind hums the sullen song to night.  
 Oh, hear that pattering shower!  
 Haste, boy—this gloomy hour  
 Demands relief; the cheerful tapers light.  
 Though now my cot around  
 Still roars the wintry sound,  
 Methinks 'tis summer by this festive blaze!  
 My books, companions dear,  
 In seemly ranks appear,  
 And glisten to my fire's far-flashing rays.

BUTT.

THE weather, in December, is cold, bleak, and gloomy; and, generally, one continued succession of

storms and tempests. Rain and wind are extremely prevalent, and, as the frost seldom sets in till the latter end of December, this month may be reckoned the most unpleasant of the whole year. At other times, however, November is better entitled to this appellation, and ice and snow contribute to give to Christmas that union of frost and good cheer which form the usual character of this season; when we may say with the poet:—

At length the snows descend, and while noon  
Maintains her empire, from some formless cloud  
Whose filmy veil, by rapid eyes unseen,  
Dims, and scarce dims, the azure vault of heaven,  
Descending oft, the *solitary flake*  
Foretels the secret purpose of the skies.  
Now mid-day warmth declines: dense haze obscures  
The turbid atmosphere; the clouds advance;  
The wind exalts his voice; and, sweeping wild,  
Claps o'er the sounding earth his snowy wings,  
And drives through heaven the horizontal storm.

On the fast whitening world impatient man  
Gazes repining; and already views  
The plough with forked handles through the drift  
Projecting in th' unfinished furrow rust;  
The oxen doomed to sloth; the rapid waste  
Of haystack lessening duly morn and eve:  
Nor thinks that Heaven, oft kindest when with signs  
Of wrath it lowers, sends forth the loaded blast  
With merciful commission; bids the snows  
Brood genial o'er the glebe, from blighting frost  
Shield infant harvest, and the stiffened joints  
Of beast and wearied hind prepare by rest,  
Salubrious though constrained, for future toil. GIBBERNE.

From the fall of the leaf, and withering of the herb, an unvarying death-like torpor oppresses almost the whole vegetable creation, and a considerable part of the animal, during this entire portion of the year. The whole race of insects, which filled every part of the summer landscape with life and motion, are now either buried in profound sleep, or actually no longer exist, except in the unformed rudiments of a future progeny. Many of the birds and quadrupeds are retired to concealments, from which not even the calls

of hunger can force them ; and the rest, intent only on the preservation of a joyless life, have ceased to exert those powers of pleasing, which, at other seasons, so much contribute to their mutual happiness, as well as to the amusement of their human sovereign. Their social connections, however, are improved by their wants. In order the better to secure their scanty subsistence, and resist the inclemencies of the sky, they are taught by instinct to assemble in flocks ; and this provision has the secondary effect of gratifying the spectator with something of novelty and action, even in the dreariness of a wintery prospect.

The *flowers* mentioned as continuing in blow in January, of course afford their beauties in this month. Evergreens, firs, ivy, laurel, and that most beautiful plant the *arbutus*, rich in flowers and fruit at the same time, serve to enliven this dreary month. How often have we seen

In April or in May,  
A pleasant garden, full of fragrant flowres,  
When the fresh earth, new clad in garments gay,  
Deckes ev'ry wood and grove with pleasant bowres.  
And now again on some *December's* day  
We see it marred with winter's storms and showres.

ARIOSTO, *by* HARRINGTON.

The common *arbutus* (*arbutus unedo*), or strawberry-tree, rises to the height of twenty or thirty feet, but rarely with an upright stem : it usually puts out branches very near the ground. The leaves keep on all the winter, and are thrust off in the spring by new ones ; so that it is always clothed with leaves.

Although few flowers are to be seen out of doors in December, the *hot-house* contains many a blooming inhabitant ; among these, the rose attracts our notice. This flower, when blown by artificial heat, is more delicate and beautiful than those which ornament our gardens in June, lovely as they are, being usually more free from blight, and those insects which sometimes destroy our garden roses. The

scent, however, of the hot-house rose is not so exquisite as that of the flower produced in the open air. Five shillings have been given for a rose at Christmas, to blush in the bosom of some expensive fair one.—See an interesting little Poem on this subject in ‘Conversations on Natural History,’ vol. i, p. 159.

The oak, the beech, and the hornbeam, in part, retain their leaves, and the ash its keys. The common holly (*ilex aquifolium*), with its scarlet berries, is now conspicuous; and those dwarfs of the vegetable creation, *mosses*, and the liverwort (*lichen*), now attract our notice.—See T. T. for 1817, p. 358.

The redbreast is still heard to ‘chaunt his cheerful strain,’ and the sparrow chirps. No bird more frequently meets our eye than this, and if it does not charm the ear by its voice, it amuses the mind by its familiarity and craftiness. It frequents our habitations, and is seldom absent from our gardens and fields. Though its note is only a *chirp*, in a wild state; when early reclaimed, it may be taught to imitate the strain of the linnet or goldfinch. Few birds are more execrated by the farmers, and none, perhaps, more unjustly. It is true, indeed, they consume a considerable quantity of grain and fruit, but then it should be considered that a pair of them will destroy upwards of *three thousand* caterpillars in a week. Nor is the utility of these birds limited to this circumstance alone: they likewise feed their young with butterflies and other insects, which, if suffered to live, would be the parents of numerous caterpillars.

The shortest day, or winter solstice, happens on the 21st of December; and the joyful season of Christmas is now approaching.

Towards the end of the month, *woodcock shooting* commences.

With shattered wing reversed and plumage fair  
Wide scattering in the wind, headlong he falls.



The pliant branches to his weight give way,  
 And the hard frozen ground his fall returns.  
 See how the joyful dogs, exulting, press  
 Around the prostrate victim, nor presume  
 With lawless mouths to tear his tender skin.  
 Obedient to my voice, one lightly brings  
 The lifeless bird, and lays it at my feet.  
 Thus oft when skimming o'er some thorny brake,  
 Struck by the shot, the wounded bird has dropt  
 Full in its centre, through the tangled briars  
 The trusty dog his painful passage works,  
 Nor leaves, till from the dark abyss he drags  
 The fluttering prey, and yields it to my hand.

FOWLING, a Poem.

Of the snipe (*scolopax gallinago*), which becomes a prey to the fowler in this and the following month, there are more than forty varieties, mostly breeding in Europe, and subsisting on insects. Some of these wild-fowl frequent moors, others delight in swampy bushes, and others in the open fields.—See T. T. for 1816, p. 351.

In this month, those wild animals which pass the winter in a state of torpidity, retire to their hiding places. The frog, lizard, badger, and hedgehog, which burrow under the earth, belong to this class. The *hedgehog* or *urchin* is among those inoffensive animals to which superstition once affixed malignant qualities. The witches in Macbeth name its cry among those of evil omen :—

Thrice the brinded cat hath mewed;  
 Twice and once the *hedge-pig* whined.

And Caliban complains of it as one of the creatures that his master, Prospero, sent to torment him :

For every trifle they are set upon me—  
 Sometimes like apes that mew and chatter at me,  
 And after bite me ; then like *hedgehogs*, which  
 Lie tumbling in my bare footpath.—

And the vulgar still believe that hedgehogs are unlucky, and even more actively mischievous ; for, that they eat the roots of the corn ; suck the cows,

causing their udders to ulcerate; and many other misdemeanours are laid to the charge of this poor little beast; who, being guilty of none of them, lives in remote hedge-rows, copses, and the bottoms of dry ditches, under leaves and fern, and feeds on beetles, worms, and flies. Sometimes, with its snout, it digs up the roots of the plantain among the grass, and makes them a part of its food.

The *bat* is now found in caverns, barns, &c. suspended by the claws of its hind feet, and closely enveloped in the membranes of the fore feet. Dormice, squirrels, water-rats, and field-mice, provide a large stock of food for the winter season.

On every sunny day through the winter, clouds of insects, usually called gnats (*tipulæ* & *empedes*), appear sporting and dancing over the tops of ever-green trees in shrubberies; and they are seen playing up and down in the air, even when the ground is covered with snow. At night, and in frosty weather, or when it rains and blows, they appear to take shelter in the trees.

The farmer is happy to avail himself of a hard frost, when 'the earth burns froze' and 'cold performs the effect of fire,' or of the sun, to dry the roads, to get the dung-cart, and carry out his manure, ready for the ensuing season of sowing spring corn.

Whatever inconvenience may be experienced from the cold and long nights of winter, all is compensated by the cheerful blaze of the evening fire with the social circle round it, and the subsequent retreat to a comfortable bed; and those who experience this happiness cannot express their gratitude to Him who affords it to them, better than by extending the blessing to those who want it, by assisting in making their cottages comfortable, mending their windows, supplying them with firing, clothing, and bedding.

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Having recommended to our readers the practice of benevolence to others, and gratitude to the Divine Being for all the favours they enjoy, we must repeat, at the close of this annual volume, what cannot too often be insisted on—that the ‘Seasons’ are emblematic of human life; and that the pride of SUMMER, the riches of AUTUMN, the rigours of WINTER, and the buds and flowers of SPRING, alike remind us of our terrestrial progress, our decay, death, and renovation in another state of being.

I have seen the green-budding spring,  
The scenes of my hope it illumed;  
I’ve seen the gay SUMMER’s bright beam,  
On its stay I fondly presumed.

I’ve seen yellow AUTUMN’s rich stores,  
I hoped its delights would abide;  
And WINTER’s chill blasts I have heard,  
The spoils of the groves spreading wide.

Since then Spring, the parent of joys,  
Is followed by WINTER’s bleak wind,  
Ah! why should I foster the hope  
Perpetual pleasures to find?

But despair not, for WINTER’s harsh storms  
Are the nurse of the hopes of the Spring;  
Both the smiles of Summer’s bright days,  
And AUTUMN’s rich treasures, they bring.

So the stern WINTER’s day of our life,  
And the tempests that over us rove,  
Shall yield to the durable smiles  
Of SPRING, ever-blooming above.

D. C.

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FOR  
1818.

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